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THE UNIVERSITY OF ALBERTA

PHYSICALLY DISABLED ADULTS AND HIGH TECHNOLOGY LEARNING: A PERSPECTIVE FOR POLICY

by

© BERNICE GLADYS BOTTAS

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND
RESEARCH IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

EDMONTON, ALBERTA

Spring, 1988

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John Sumarah

Date: 24 Nov., 1987

This work is dedicated to
my grandsons --

Jamie, Cody, Jesse.

ABSTRACT

The primary purpose of this study was to provide information to be considered for problem structuring and policy development in the area of high technology learning experiences and physically disabled adults.

A qualitative approach using a multi-case study scheme was employed. Data were gathered between September and November, 1986, through the use of interviews with physically disabled adults, significant others in their lives, and experts in the field of physical disability. A limited document source was used for informant selection purposes and in the preparation of vignettes of the physically disabled adult informants.

The problem structuring interpretive framework developed by Dunn (1981) was adapted for use in this study. Data collection and data analysis were conducted within a modified two-phase framework which included problem sensing, problem conceptualization, and problem specification.

The findings indicated that (a) existing programs and services for physically disabled adults are inadequate; (b) a range of requirements exist for physically disabled adults; (c) physically disabled adults are highly motivated to attend high technology learning experiences; (d) success is highly valued by physically disabled adults; (e) regular programs and services are preferred by physically disabled adults; (f) a special purpose administrative unit would be appropriate to care for the varied requirements of physically disabled adults; (g) physically disabled adults require innovative and adaptive high technology learning experiences; (h) support services and financial support are essential for physically disabled adults; and (i) an equipment resource coordinating center may be a preferred way to provide high technology equipment to learning institutions.

Recommendations derived from the findings offer a perspective for policy intended to promote advances in high technology programs and services for physically disabled adults.

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CHAPTER I

"I was given infirmity, that I might do better things. . ."
Henry Viscardi, Jr.

Background To The Study

Historically, physically disabled adults have faced a life of economic dependence and despair. The opportunity to become productive and self–supporting through education has been outside the parameters of reality for the majority of physically disabled adults. Physical, social, and psychological barriers to self-actualization are ever–present in the lives of such persons. An accurate count of physically disabled persons in Canada has been uncertain. However, Statistics Canada is making plans to determine the number of physically disabled persons in the next census so that more accurate figures may then be obtained. Such reporting will be a departure from past census conducted in Canada. The Canadian Rehabilitation Council estimates one in seven Canadians is physically disabled (Brehaut, 1978:79). The Obstacles Report of the Special Committee on the Disabled and the Handicapped disclosed:

> Over two million Canadians are physically or mentally disabled; one–tenth of the national population. Yet, very little is known about their social and economic situation. The cost and care of these disabled persons runs into the billions of dollars, yet Statistics Canada does not consider the disabled population important enough to warrant a special category in the 1981 Census questionnaire (Government of Canada, 1981:131).

In the meantime, as a result of a recommendation by this special Committee on the Disabled and the Handicapped that a long-term program be initiated to gather comprehensive data on disabled persons in Canada, Statistics Canada Health Division initiated a Canadian Health and Disability Survey. This survey was carried out in October

1983 and June 1984 and represents a first step in carrying out this mandate. A summary of the findings of this survey indicated that

> Among the Canadian adult population, 12.8% report some level of disability, rising from a low of 3.8% among those aged 15-24, to a high of 38.6% of those over 65 years of age (Statistics Canada Health Division, 1986:13).

This report also examined the nature of disabilities and discovered that

> Two-thirds of all disability problems identified in the survey related to mobility or body movements; 14.8% related to hearing and 7.7% related to eyesight. The medical conditions that most frequently cause disability are diseases of the musculoskeletal system and connective tissue, arthritis and rheumatism, and hearing disorders (Statistics Canada Health Division, 1986:13).

Many of these persons spend a lifetime watching the world go by from extended care homes/hospitals. A productive, fulfilling life passes them by. A survey of physically disabled adults in Edmonton by Abrams (1984:4) revealed

> a pattern of chronic unemployment, or underemployment in "make-work" projects, and extreme frustration resulting from the inability to do productive work and, thereby, gain economic independence.

Information collected elsewhere in Canada tends to reinforce the existence of circumstances similar to those observed in Edmonton:

> The rate of unemployment for employable disabled Canadians is extraordinarily and unacceptably high, according to the findings of the Special Parliamentary Committee on the Disabled and the Handicapped. The precise figure is difficult to determine as no recent Canada-wide tabulations have been made, but a former Minister of National Health and Welfare, the Honourable Marc Lalonde, estimated this figure to be approximately 50%. A recent publication of Health and Welfare Canada stated that the figure is 80%, while the Coalition of Provincial Organizations of the Handicapped (COPOH) suggests that it may be as high as 90%. Whatever the exact figure, there is no doubt that the rate of unemployment for disabled persons is much higher than for the Canadian population as a whole (Canadian Rehabilitation Council for the Disabled, 1982:2).

> Among those aged 15-64 who report a disability, 41.5% are employed compared to 67.4% of non-disabled persons in this age range. Comparing the income levels of those reporting a disability with the Canadian population indicates that 30.6% of the total population have incomes of $20,000 or more, compared to 14.5% of those with a

> disability. The level of income for those with disability tends to decline as the severity of the disability rises, so that only 3.5% of those reporting a major disability have incomes of $20,000 or more. Those with the most severe levels of disability are the least likely to incur additional expenses as a result of their condition. (Statistics Canada Health Division, 1986:13).

In the past decade, awareness of the special educational needs of the physically disabled adult has surfaced. The Council of Ministers of Education, Canada (1987:25) stated

> The provinces' education institutions have been quick to respond to the growing awareness that the impact of a disability on an individual's life can be substantially mitigated by increasing the surrounding environment's sensitivity to the individual's particular needs and to ways of meeting those needs.

As noted in the recent Obstacles Report

> A higher proportion of those reporting a disability have low levels of formal education compared to the population at large, a trend that holds true across all age groups (Statistics Canada Health Division, 1986:13).

The report also reveals that disabled persons are doubly disadvantaged since they

> may have functional limitations that restrict their access to certain types of work, and they also have lower educational attainment that may limit their access to work (Statistics Canada Health Division, 1986:77).

Some provisions to accommodate the mildly disabled in Alberta are now in evidence. For example, Alberta Education (1985:31) has acknowledged that it is

> responsible for providing college and Alberta Vocational Centre programs to mildly disabled students who would benefit from a special one or two–year vocational program prior to employment or more advanced training.

This is reaffirmed by the Council of Ministers of Education, Canada (1987:16 and 17) who also advised that

> several designated postsecondary institutions in Alberta provide special support services to assist students who need interpreters, tutors, notetakers, special equipment and counselling in order to succeed in postsecondary education.

Postsecondary institutions such as the Northern Alberta Institute of Technology, Grant MacEwan Community College, and the University of Alberta have appointed coordinators or directors to attend to the particular needs of physically disabled students. In some cases handbooks have been developed to outline the particular services available to disabled students. As a result, the attendance of some physically disabled adults at such postsecondary institutions has been facilitated. But little evidence exists that the institutions are adapting learning activities to meet their specialized needs. Due to the severity of their disabilities and lack of academic qualifications many other physically disabled adults are not accommodated by the present adult education system.

An attempt was made to partially fill this void by the establishment of the P.H.O.E.N.I.X. Training and Development Foundation (P.H.O.E.N.I.X.) registered under the Societies Act on September 1981. P.H.O.E.N.I.X. is an acronym for Physically-Handicapped-Occupational-Education-Nurturing-Individual-X-cellence. It was a non–profit organization intended to provide vocational training in high technology job classifications for physically disabled adults. P.H.O.E.N.I.X. was jointly funded by two ministries: Alberta Social Services and Community Health (Vocational Rehabilitation Disabled Programs), and Canada Employment and Immigration (Job Corps Programs); and by private and corporate donations. Although financial and administrative difficulties brought about the closure of P.H.O.E.N.I.X. in June 1985, the concept of P.H.O.E.N.I.X. was viewed as a promising one. Earlier, Abrams (1984:127) recommended that the P.H.O.E.N.I.X. Training and Development Center facilities be expanded and an increase in equipment and personnel be provided to meet the requirements of the physically disabled individuals in the Edmonton area. Following its closure Patillo (1986:106) alleged

> The closing of this innovative and successful program is indeed a tragedy. It is programs such as these that are required both for the physically disabled and the able–bodied. At a time when Canada is struggling to establish a presence in the high–technology field, the

> closure of this kind of program is unfortunate. It is also unfortunate that one of the few resources of this kind for the physically disabled in Western Canada should not be given the assistance, the support and the funding necessary for it to be the [sic] success. If ever there was a program that should be "raised form [sic] the ashes" it is P.H.O.E.N.I.X.

Since the demise of P.H.O.E.N.I.X., no similar organization has attempted to address the needs of physically disabled adults in a holistic sense in the Edmonton area or elsewhere in Alberta.

The literature and research dealing with disabled adults suggests that high technology learning experiences may be an appropriate approach to meeting the holistic requirements of physically disabled adults. For instance, McWilliams (1984) concluded, following a review of the equipment available, that high technology is the most effective way of meeting the requirements of these people. As well, Patillo (1986:123) reasoned, after interviewing a number of physically disabled adults utilizing high technology, that

> The physically disabled need no longer be resigned to a lonely life of isolation and dependency. The micro–computer has provided a means of communicating, pursuing employment, leisure interests, ongoing education and increased independence at relatively little cost.

Nonetheless, the work done to date has been very exploratory, offering little guidance for the development of policy or programs. Thus, a need remains to examine the appropriateness of the high technology approach in order to validate and extend earlier findings, particularly with respect to circumstances prevailing in Alberta.

Statement of the Problem

The research problem that served as the basis for this study was the following: What information should be considered for problem structuring and policy development in the area of high technology learning experiences and physically disabled adults?

Research Questions

In order to address the foregoing problem and provide a perspective for policy, the perceptions of physically disabled adults, their significant others, and experts in the field of physical disability were sought relative to the following questions:

1. What are the present high technology learning experiences available for physically disabled adults, and are they perceived to be adequate for their requirements?
2. What is perceived to be the nature of special requirements for physically disabled adults in a high technology learning experience if they could ideally be met?
3. What rationale do physically disabled adults have for undertaking a high technology learning experience?
4. What are the obstacles (physical/psychological/social) to the availability of high technology learning experiences for physically disabled adults?
5. What efforts are physically disabled adults prepared to undertake in order to overcome obstacles they perceive standing in the way of achieving high technology learning experiences?
6. What is perceived to be the relationship between the degree of physical disability and the appropriateness of a high technology learning experience?
7. What are perceived to be the major criteria for determining the type of high technology learning experiences to best meet the requirements of physically disabled adults?
8. What possible benefits are perceived to be derived by physically disabled adults from a high technology learning experience?

Reflective Question

9. Will the perceptions of the informants, involved in this research, aid in the problem structuring and decision making process relative to policies on the high technology learning experiences of physically disabled adults?

Justification for the Study

This study can be justified on practical and theoretical grounds. In a practical sense it may make three contributions. First, it should provide a sense of direction or perspective for policy at both the local and provincial levels in regard to programs and services for the physically disabled adult. Second, it should yield information useful to those responsible for planning and conducting high technology learning experiences for physically disabled adults. Third, this study should offer additional insights to elected and appointed officials about the interest articulation and aggregation process in policy development.

The study may also make three theoretical contributions. First, it should add to knowledge about the use of problem structuring approaches to developing recommendations for policy decisions and would thus aid understanding of policy analysis. Second, it should provide a test of the interpretive framework outlined by Dunn (1981) and thereby contribute to problem structuring theory. Third, this study should generate some propositions about the requirements of physically disabled adults and ways of meeting them that could be tested empirically.

Delimitations

The following are the delimitations of the study:

1. The focus of the study is on physically disabled adults and does not include sensory or mentally disabled adults.
2. Only high technology learning experiences are addressed and not other academic pursuits at the postsecondary level.
3. Only those individuals who have had an opportunity to experience a form of a high technology learning experience, their significant others, and experts in the field of physical disability are informants in this study.

Limitations

The limitations of the study are as follows:

1. The study is limited by the data gathering techniques used which rely heavily on the personal perceptions of physically disabled adults, their significant others, and experts in the field of physical disability.
2. Since the six physically disabled adults chosen to participate in this study are a unique group inasmuch as they have all engaged in high technology learning experiences, this places some bounds on the generalizability of the findings.
3. This study is limited to the geographical boundary of Alberta.

Assumptions

It is assumed that the data provided will fulfill the needs of this study and that the perceptions of the informants in this study, including those of the investigator, are trustworthy.

Definitions and Descriptions

For the purpose of this study, the following definitions are provided:

Perception:

> Perception is . . . a process which entails being sensitized to and developing certain interpretations of stimuli or facts (Litterer, 1973:108).

Physical Disability:

> Disability is the loss or reduction of functional ability and activity, consequent upon impairment. This is the reduction of ability to "do things" such as performing movements or tasks (Alberta Rehabilitation Council for Disabled, 1982:3).

Disabled Adult Student:

> Disabled adult students are disabled persons 18 years of age or older, as of September 1 in the year in which they attend school, whom a board in its discretion admits to its schools and who are funded:
>
> (a) under the Special Education Program Grant and the School Foundation Program Fund per pupil grant (for those who are 18 or 19 years of age); or
>
> (b) under the Special Education Extension Grant (for those who are 20 years of age or older), (Alberta Education, 1985:30).

Holistic Approach:

> A holistic approach to supportive services programming for disabled students is essential; that is, it is necessary to view the student as a total human being, not merely as a student. Students must be provided with attendant care and other physical and medical services, encouraged to develop independent living skills, benefit from career counseling and job placement, and assisted to develop a healthy and realistic self–image, a pattern of values, and a degree of independence compatible with the standards of society within which students will live (Bryan and Becker, 1980:21).

Significant others:

Significant others, with respect to the physically disabled adults in this study, were parents, spouse, siblings, close confidants/mentors/friends and attendants, as identified by the physically disabled adults themselves.

Experts in the Field of Physical Disability:

The perceptions of three categories of experts were accessed in this study. The first category includes those concerned with occupational training and employment, such as vocational and educational specialists and occupational therapists. The second category includes those involved in counselling and life skills such as residential, counselling, equipment, and independent living specialists, as well as social workers and psychologists. The third category includes administrators of rehabilitation and those in social and government agencies.

High Technology:

High technology learning experiences includes both those programs in a high technology field (i.e. computer programming) and those programs in unrelated fields utilizing high technology (i.e. computerized drafting).

Based on consultation with experts in the field of physical disability, the following descriptions were developed to define the characteristics of individuals who are mildly disabled and severely disabled:

Mildly Disabled:

The individual's disability is not incapacitating. Full or slightly limited use of all limbs and faculties is maintained. For example, an individual with one short leg as a result of an old polio walks unaided but takes an inordinately long time to cross the road and cannot do so while the traffic light remains green. Stairs can be climbed but slowly. The individual's safety is therefore limited as may be accessibility to learning experienc.

Severely Disabled:

The individual's disability is incapacitating. Use of limbs and/or other faculties are not maintained. The individual requires physical and/or human aids to carry out the tasks of daily living such as self–care and transportation. As an example, an individual who is a paraplegic or quadriplegic confined to a wheelchair would be termed severely disabled.

Organization of the Thesis

The thesis contains ten chapters. This chapter has provided a brief description of the background to the study. The statement of the problem, and the justification for the study are outlined. Delimitations, limitations, and assumptions are affirmed, and relevant terms are defined.

Chapter II provides a review of selected related literature. This literature review defines "physical disability" and what is meant by the term "adult." A discussion of the adult learner and the physically disabled young learner is provided to enhance an understanding of the physically disabled adult learner. A review of physically disabled adults in the learning environment follows with particular emphasis given to high technology.

Chapter III presents the research design for the study. The research design is discussed with attention being given to the concepts of the interpretive paradigm, the multi–case study scheme, and trustworthiness. The nature and sources of data are reviewed, as well as the instrumentation. The quality controls applied to this study conclude this chapter.

Chapter IV describes the data collection and data analysis process. In conjunction with this process, the interpretive framework for the study is presented.

Chapter V outlines the context of the study. Vignettes of the physically disabled adult sample are also presented.

In Chapters VI, VII, and VIII study findings are presented as they relate to high technology learning experiences and physically disabled adults.

In Chapter IX the findings are analyzed, compared, and synthesized.

Chapter X includes the propositions, conclusions, and recommendations which emerged from the study.

CHAPTER II

Review of Related Literature

A perspective for this study is provided through a review of the related literature. Castetter and Heisler (1980:33–39) suggested that a review of related literature is intended to perform six functions: to study the history of the problem, to aid in selection of investigative procedures, to become familiar with the theoretical background of the problem, to assess the merits of previous studies, to avoid unintended duplication, and to justify selection of the problem.

This review is organized progressively beginning with a discussion of why the term "physically disabled" is appropriate to this study and what it entails. Literature concerning adult learners is then reviewed and is followed by a discussion of research relevant to disabled young learners. Thereafter, an examination of the emerging information about physically disabled adult learners and educational services available to them is undertaken. This examination places particular emphasis on high technology and adaptations to facilitate the physically disabled adult. The chapter concludes with a listing of the key propositions emerging from the review.

The researcher has endeavored to approach this literature review from a holistic perspective and while it is recognized that such things as housing, transportation, and financing have only been addressed in a peripheral manner, this by no means suggests they are not recognized to be of importance in the lives of persons with physical disabilities.

The review reveals that ample literature exists dealing with the physically disabled adult within the mainstream of the school systems. This is particularly so since the passing of the Rehabilitation Act in 1973 in the United States which broadened the scope of services to the disabled community. Less research has been carried out in connection with specialized schools or learning centers.

Physical Disability

While physical disability was previously defined, further definitions serve to broaden the understanding of the concept and condition.

Europeans seem to have agreed that

> A person should be regarded as handicapped when for physical or mental reasons he encounters considerable difficulties in his daily life, has special needs besides the common ones and needs special assistance for his education, employment, integration into society, etc. (Council of Europe, 1972:6).

Canadians do not have any one generally accepted definition of the physically disabled. However, a National Conference of the Physically Disabled in 1973 resolved that

> A disabled person is a human being who through disease, illness, congenital condition or traumatic experience, is impaired in functioning in one or more areas of daily living. This functional impairment causes unusual and undue dependency on one or more other human beings and/or mechanical devices (Canadian Rehabilitation Council for the Disabled, 1973, Resolutions).

On the other hand, McLoughlin (1982:240–241) argued that most legal and agency definitions are so global in nature that they are relatively useless. Many do not differentiate between physical and mental impairment and become so all–inclusive that such individuals as drug abusers and alcoholics could fit under the umbrella of handicapped. McLoughlin (1982:241) suggested the definition developed by Hutchins (1978:65) to be an appropriate approach. This definition views a physically handicapped person to be one with "a stabilized physiological condition that involves no mental impairment and which restricts physical capacity to an observable, permanent, and severe degree." McLoughlin (1982:241) reasoned that such a definition is preferred since it "deliberately requires the handicap to be visible, for it is the stigmatizing of disabilities by society that has prejudiced and restricted the educational opportunities available to the physically handicapped."

The researcher chose the term "disabled" over "handicapped" as persons with physical disabilities indicated early in the study that this was the preferred term. The term appears to conjure up fewer negative connotations than "handicapped." Furthermore, handicaps can be removed and disabilities cannot.

> "A disability . . . is some kind of impairment with an overt objective aspect that can be described by a physician. A handicap, on the other hand, is the result of all those obstacles which keep an individual from reaching his or her maximum functional level. A permanent disability cannot be removed, but a handicap resulting from a disability can be removed or reduced. People who have a disability do not necessarily consider themselves handicapped" (Alexander, 1979:196).

Kirkland (1973:4) further clarified the distinction between disability and handicap by stating:

> It is emphasized that "physical handicap" and "physical disability" cannot always be used interchangeably. A disability is a handicap only under specific circumstances. A physical "disability" is a medically definable impairment of some body function(s). It becomes a "handicap" only when it prohibits activity of the pursuit of specific goals.

Adult Learners

A very broad definition of an adult has been suggested by Whitbourne and Weinstock (1979:3–6). They view an adult as one who has achieved the developmental tasks of adulthood. Such developmental tasks include having attained financial independence through work, being recognized in the community as a mature person, and having married and acquired a family. However, these writers recognized that developing a particular set of criteria to identify who is an adult poses some difficulties:

> Some persons fail to meet all of these conditions and still can be considered adults. For example, a student in a professional or postgraduate program might well be dependent upon parents or others for financial support; yet it would seem reasonable to classify this person as an adult. Others may choose to remain single, or may marry but not have

> children. These persons may intuitively be considered to be adults, even though they fail to meet the standard social definition (Whitbourne and Weinstock 1979:4).

It is obvious that many persons considered to be adults do not fit this normative definition. In particular, many physically disabled adults have not achieved the kinds of developmental tasks associated with adulthood as described by Whitbourne and Weinstock. They may well not have attained financial security or married and acquired a family of their own. However, physically disabled adults do exhibit many of the characteristics and needs of other adults when it comes to learning.

As outlined by Knowles (1970:49), it is the element of speed that most significantly separates the adult learner from the young learner. It is the amount of time required to learn or perform that is most affected by aging. The adult's learning ability is not greatly affected provided time is not critical:

> The speed at which learning occurs is a major age–related influence on learning effectiveness. Much of the decline in educational performance by older adults reflects a speed deficit instead of a decline in learning power (Knox, 1977:467).

Since it has been established that the adult continues to have learning power and ability but reflects a speed deficit, it is necessary to turn attention to why slowing down is one of the most characteristic features of aging.

Reduction in speed is mainly due to physiological changes. Reaction time--the time lag between when a person sees, hears, or feels a stimulus and when he begins to respond--gradually increases during middle and old age. Reaction time includes perception of the stimulus by the sense organs, transmission of the information to the brain, and then the selecting of a response. The motor phase entails carrying out of the response or action.

> It seems clear . . . that the main changes of speed with age are in the central processes of perceiving signals and of selecting or "shaping" actions in response to them (Chown, 1972:96).
>
> Speed of learning involves reaction time to perceive the stimulus, transmission time to transmit the message to the brain, and response time

> to carry out the action. On the average, older learners perceive more slowly, think more slowly, and act more slowly than younger people. Current knowledge suggests that aging has somewhat more impact on time needed to perceive the stimulus than on time needed to react, but reaction time is related to the complexity of the task and to individual differences (Cross, 1981:155).
>
> In middle and later adulthood, a greater amount of time is needed for a person to perform the same number of responses correctly than could be done at younger ages (Whitbourne and Weinstock, 1979:27).

Therefore, it seems that changes in the central nervous system, a loss of active cells, and a change in those that remain in the brain are some of the main causes of a slowing with age. Whitbourne and Weinstock (1979:19–23) emphasized the effects of age on our sensory structures of vision, hearing, touch and pain, and taste and smell. Two structural changes account for a diminished visual perception in adulthood. One is an alteration of the lens and the other a structural change in the retina. Peripheral vision, colour vision, and depth of perception are all reduced by aging.

> Taken together, changes in sensitivity to light and dark conditions and movement between the two, focusing ability, depth perception, color perception, and discriminatory powers for resolving details can distort the adult's vision by reducing the clarity and changing the dimensional perspectives of the adult's visual world (Whitbourne and Weinstock, 1979:21).

With respect to hearing, Whitbourne and Weinstock (1979:22) noted that the ability to hear high and low tones diminishes with age and that some hearing loss is experienced by men in their early 30s and women in their late 30s.

Cognizance must also be taken of certain psychological changes in the adult which contribute to slowing down. The adult becomes cautious, a caution born of experience, which leads him to emphasize accuracy rather than speed. Forgetting is also a significant phenomenon caused by proactive or retroactive interference as outlined by Hill (1977). Learning that occurred before a new learning experience is termed proactive and learning which interposes between a learning experience and recall may be termed retroactive interference. Proactive interference is largely responsible for forgetting and slowing down as one grows older. Hence, immediate memory tends to decay more quickly for adults so that they require adequate time to focus on the information presented without distraction. A deterioration of short–term memory may also be attributed to sensory impairment. Long–term memory remains constant. Generally, an adult has a good deal more on his mind and may be faced with many complex problems as compared to a younger learner. These interferences can also cause a slowing down of learning. If an adult has not been in a learning situation for a long period of time, disuse itself can cause a slowing of learning.

However, it is unwise to assume that all adults are affected in this manner:

> While the data, overall, point to the central nervous system as the antecedent of the slowing with age, the implications for higher level functioning remain equivocal. Whatever the implications, however, they must be qualified by the following: It is possible that life habits of physical exercise reduce the extent of slowing; and extended practice may eliminate it completely. Finally, it is most important to recognize that, whatever the significance of the slowing with age, the magnitude of individual differences is very great. Very many old people are quicker in responding than many young people (Botwinick 1973:5).

Thus, it is of prime importance in andragogy (the teaching of adults) to recognize individual differences just as in pedagogy (the teaching of children). Due to their previous learning/work experiences, each adult is very unique. This uniqueness may be used to advantage in the learning environment. Positive use of such experience can motivate the adult learner and may facilitate the speed with which the adult learns (Botwinick 1973:5).

But the critical factor for the adult learner is the nature and pace of instruction:

> The way that humans change as they grow older affect the amount of new material they can learn and the speed at which they learn it. Instruction must therefore be modified to suit the characteristics of the learners, and this is particularly important in the psychomotor domain where speed of performance is critical. Changes in such capacities as vision and hearing occur quite naturally throughout the adult years, and the nature and pace of instruction should be adapted to the abilities of adult learners in these areas (Dickinson 1973:6).

Since speed deficiency is the major impediment in adult learning and since the cause of this speed deficiency is primarily physiological, the learning environment of the adult must be designed to overcome or minimize it. This is particularly so with respect to the physically disabled adult learner.

Physically Disabled Young Learners

Brief reference to some of the literature on the learning environment of the physically disabled young learner serves to illuminate the problems and opportunities facing the physically disabled adult learner.

Education of the physically disabled young learner was initially left to parents, siblings, or paid tutors and was confined to the home. In the early 1800s residential schools for the physically disabled learner began to appear in North America.

> The early approach to the question, and one which still persists in many quarters, was to attempt to behave as if disabled people did not exist. This was originally achieved by shutting them away at home or in institutions but it has continued in policies that have allowed the erection of public buildings, leisure and recreational facilities and transportation systems inaccessible to large numbers of disabled people (Brown, 1977:452).

In the late 1960s, a barrage of reports indicated disabled learners were not learning at a rate that could be expected of them within the self–contained classroom setting.

> Regrettably, this trend to circumvent past mistakes by "mainstreaming" handicapped children led to many unrealistic placements of children who did not possess the academic and/or social competency to be matriculated into regular school curricula or activities (Larsen and Poplin, 1980:5).

Larsen and Poplin (1980:1-9) observed that education of the physically disabled young learner has moved from one extreme to the other. Obviously then, the physically disabled learner would require adapted physical facilities such as bathroom facilities, widened hallways and doorways, ramps or elevators, furnishings, equipment, automatic door openers, telephone accessibility, and specially designed learning devices. What is still being questioned is the degree to which they should be segregated or integrated for instructional purposes.

In the learning environment of the physically disabled young learner, it has long been recognized that instructor attitude and specialized training strongly influences achievement. Nonetheless, teacher education programs have frequently been criticized for being too narrow in scope when they focus on preparation that deals extensively with teaching a particular type of disabled young learner (National School Public Relations Association 1974:52).

To meet this criticism, the following guidelines were advocated with respect to the education for teachers of special needs (disabled) young learners:

> 1. Teacher education should stress the belief that children, handicapped or "normal," are more alike than different in their basic human nature.
>
> 2. Second, we must recognize that helping teachers deal with the uniqueness of children is basically an attitudinal problem . . .
>
> 3. Third, . . . we must give teachers a theoretical foundation with knowledge of underlying processes of learning and behavior as their tools. They can apply these hypotheses and tools to the myriad of unique situations that they will face (National School Relations Association, 1974:53 and 54).

Whether disabled learners be found in a mainstream setting or in a particular program designed for them, it is imperative that their teachers have a constructive attitude towards them.

Such an attitude has been characterized as one which incorporates the following elements:

> 1. Belief in the right to an education for all students;
> 2. having, and openly showing, a respect and appreciation for differences;
> 3. willingness to share information and competencies as a team member;
> 4. openness to include parents and other school personnel in planning for and providing instruction to students;
> 5. flexibility with respect to curriculum and instructional procedures; and
> 6. recognition that social and personal development can be taught, and that these are just as important as skill achievement (Hughes 1978:79).

Hughes (1978) also argued that only by believing in the abilities of physically disabled learners, can educators instill in learners a belief in themselves. Such a belief is critical to the self–esteem of such learners. The achievement of self–esteem is viewed as the first step in the rehabilitation of physically disabled learners.

In conjunction with the foregoing, a study conducted by Curtis (1985) is of interest. This study investigated the attitudes of university students in teacher education programs toward disabled children. He (Curtis, 1985:300-301) found that students in "primary, intermediate, secondary, and special education programs were found to be mildly accepting of disabled people and mainstreaming." Among this group, special education students were found to be "somewhat more favorably predisposed" in this regard. Females were found to be more receptive than males to the disabled and mainstreaming. Mainstreaming was supported to a limited degree, and with respect to the physically disabled, it was felt that those moderately disabled could be accommodated in the regular classroom, but those severely disabled should not be so integrated. The study also revealed that the students felt that teachers were not "sufficiently prepared for mainstreaming."

For mainstreaming to be successful, a clear plan of action, along with realistic procedures, must be worked out. When this is done, the rewards are many:

> Many people maintain that mainstreaming of the physically disabled, although fine in theory, is impractical, largely because of the expense involved. However, multi–handicapped students have been successfully mainstreamed in a Winnipeg school. Experience at Grant Park High School has demonstrated that mainstreaming, although expensive to implement, builds self–confidence in students with special needs and, at the same time, alerts teachers and students who are not physically disabled to the problems of the multi–handicapped. Mainstreaming also helps to bring home the fact that while the special students have many disabilities which rob them of the use of limbs or bodily functions, they have the same wants and needs as the non–disabled (Craton, 1985:9).

Similarly, examples exist of successful segregated arrangements. The Human Resources Center, Albertson, New York, opened its doors in September 1965 to some 200 severely disabled children. This school was founded by Henry Viscardi, who had previously developed a charitable corporation in 1952 called Abilities, Inc. Dr. Viscardi was born legless. From humble beginnings in a converted garage, Abilities, Inc. became a world famous work center for the disabled and the founding roots of The Human Resources Center. At this Center, academic and vocational programs are provided. The Human Resources Center has become a rehabilitation model throughout the world.

> The Human Resources School, we called it. A school where the severely disabled child would get a chance to meet life on realistic terms, where each child could have the fullest opportunity to learn, to grow, to build his future, so that many of the heartbreaks our own workers at Abilities had lived through might be avoided, many delays and pitfalls and setbacks could be bypassed, so that the severely crippled child of today could be--insofar as humanly possible--the successful, accepted adult citizen of tomorrow (Viscardi,1964:11).

The researcher is aware of yet another approach to educating physically disabled children that exists in Grande Prairie, Alberta. The Crystal Park School is an integrated school for the disabled offering schooling from kindergarten through Grade 9. When it opened in 1984, Crystal Park School had 92 disabled and 416 able-bodied students. The school offers programs such as physiotherapy, speech therapy, and independent living skills for disabled children and a student aide program for able-bodied students wherein they learn to assist disabled students in the classroom.

High technology utilization eases the burden of performing physical tasks. Butler (1983) introduced sixteen Grade 1 physically handicapped students to the operation of a microcomputer. Butler's initial evaluative conclusions were:

> 1. Using innovative methods, all sixteen physically handicapped children in this study were indeed able to become familiar with the microcomputer;
>
> 2. Of the sixteen students, only three were so severely handicapped that they were unable to functionally operate the equipment and these three were able to direct others to do so in their behalf; and
>
> 3. Using the microcomputer, each child was able to demonstrate his or her knowledge in prescribed assignments of previously learned and new concepts selected by their teachers as being appropriate to the Grade one level of learning (Butler, 1983:80).

Such conclusions emphasized the advisability of utilizing computer-aided instruction in the learning environment of the physically disabled learner.

Physically Disabled Adult Learners

While much less has been written or investigated with respect to physically disabled adult learners, the enforcement of Section 504 of the Rehabilitation Act of 1973 in the United States, as previously referred to, has stimulated greater activity in the past decade. As a result of this legislation, colleges and universities were required to provide program accessibility to disabled learners:

> No qualified handicapped person shall, on the basis of handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which receives or benefits from Federal financial assistance (Federal Register, 1977: Section 84.4a).

A similar situation prevails in Canada in the absence of legislative requirements; therefore, it is not surprising that most of the professional literature deals with the physically disabled adult learner within an integrated, mainstream setting.

Characteristics

The characteristics of the physically disabled adult learner are as varied as are those of the able-bodied adult learner, if not more so. This variation occurs in both the personality of learners and in the nature of their disability. As previously noted, special education courses have been criticized for preparing teachers for a specific type of disability. At the adult level, this caution is also expressed:

> Another persistent theme is the need for an individualized approach to serving handicapped students. It is impossible to prescribe solutions for all of the handicapping conditions that students may have, since there is considerable variation in the degree of handicap, the student's background, the student's level of independence, the student's vocational and academic goals, and the physical modifications that may be necessitated by the student's handicapping situation. It should be emphasized that an individualized approach for handicapped students is consistent with the approach espoused by specialists in other branches of student services (Schmidt and Sprandel, 1980:72).

Each disabled adult learner is very much an individual and, as already indicated, adults become more and more individualistic as they mature. Educators cannot expect one particular solution to be pandemic. Disabled adult learners suffer from a great variety of disabilities from very minor to very severe and debilitating. As a result, Alexander (1979:197–201) pointed out that adjustments in the classroom must necessarily vary depending upon the nature of the disability. For example, an individual in a wheelchair, a blind individual, and a deaf individual each require different and specific kinds of treatments. However, all may require more time to learn and to complete assignments. Therefore, flexibility is required, but care should be taken not to give preferential treatment in the evaluating of performance. Alexander (1979:199) cautioned that it would be wrong to give disabled learners an unrealistic opinion of their abilities as sooner or later the competition and pressure of the work place must be faced.

The background of disabled adult learners also contributes greatly to their individuality. Bryan and Becker (1980:10) described the varied background of physically disabled adults most aptly:

> Handicapped students enrolled in postsecondary institutions come from a wide range of educational backgrounds and settings. Some students come to the university from residential schools where they have had few opportunities to learn living skills that will aid them in their search for independence in a higher education setting. Such students may have experienced social isolation, limited preparation for postsecondary work, lack of a cohesive family unit, lack of vocational and social models, limited experience in social interaction with community and peers, few reality checks, and lack of decision–making skills. Other handicapped students may come to the university from a home setting where they have attended a specialized day school. These students may have acquired many more survival skills than those educated in residential settings. Still other students will come to the university from a community–based traditional secondary school setting. While it is not possible to identify fully all of the educational settings and backgrounds from which handicapped students come, the reader should be aware that this population will be as diverse as any other in a university.

Blosser (1980:34) also highlights the fact that some disabled adult learners have been restricted by their previous schooling and their family settings from developing appropriate life-skills. Their ability to cope is further inhibited "by such factors as accessibility, transportation, attitudinal and communication barriers, and physical limitations" (Blosser, 1980:34).

With respect to maturity, Burkhead and Cope (1984:146) found that physically disabled college students were more career or vocationally mature than able–bodied college students. Such maturity refers to career development and career decision-making. Their findings differed from those of previous investigators (Davidson, 1975; Lacey, 1975; Stuckless, 1975; Overs, 1975) who claimed that disabled learners were immature vocationally due to lack of experience in the decision–making arena. Burkhead and Cope (1984:147) also found that female college students were more vocationally mature than male college students and that neither the type or age of onset of physical disability were related to career maturity.

Attitudes

One of the most significant factors in dealing with the physically disabled adult learner is the concept of attitude. Both the attitude of the individual and the attitude of those in association with the physically disabled adult learner, whether they be positive or negative, are a prime consideration. This is particularly so of educators. Penn and Dudley (1980:354) postulated that it is precisely negative attitudes that have excluded the disabled from the mainstream of society to any large degree:

> Unfortunately, the history of the handicapped in society has been sad. Throughout time, handicapped people have been viewed as inferior, as outcasts from society, and as people punished for their sins or possessed by the devil.

Such attitudes are significant since it is recognized that it is attitudes that play a large role in the rehabilitation and education of the physically disabled learner. Viscardi (1970) stated that

> it is recognized in the field of rehabilitation that attitude and motivation are significant factors in the adjustment of the physically disabled. A disabled person who is highly motivated and has appropriate attitudes will behave very differently from one who is not motivated and has negative attitudes (Yuker, Block, Young, 1970:Foreword).

Viscardi (1970) went on to suggest that it is essential that educators of the physically disabled learner be able to instill in the learner a genuine feeling of self–worth in order that the learner may be motivated to achieve.

It is also asserted that educators of the physically disabled learner must be comfortable and at ease with him. Brown (1977:452) outlined the feelings of many able–bodied persons with respect to disabled persons:

> . . .few people who are not disabled really believe that they will become disabled. It is something that "happens to someone else, not to me." Few believe or want to believe that they will have a disabled child or that their healthy active son or daughter may one day have an accident and be left disabled. Many do not know how to relate to a disabled individual. They feel helpless and ill at ease, and would prefer not to be confronted with a situation they do not know how to handle.

Educators can no longer afford to feel as Schmidt and Sprandel (1980:72) alleged:

> Because those who are handicapped are often perceived as being different, persons having relations with the handicapped feel that they are dealing with an unknown situation.

A realization that the physically disabled adult learner is a human being who thinks and feels as we do is critical. Educators of such learners would need to be familiar with their needs, both physically and emotionally, so that they could comfortably help meet such needs to the fullest extent possible. Moreover, teachers of the physically disabled learner can no longer afford to be uninformed about the condition of the physically disabled learner. The Report of the Special Committee on the Disabled and the Handicapped recommended that "professional schools and faculties be encouraged to include course material about disability. . ." (Canadian House of Commons, 1981:104). Alexander (1979:196) attested to the importance of such knowledge by suggesting:

> In the classroom, the most serious problem facing an instructor of a disabled student is probably the instructor's emotional response to the student.

Additionally, Alexander (1979:196) speculated that while most instructors are sensitive to the needs of others, they may be apprehensive with respect to the needs of the disabled learner. They may feel the burden of a physically disabled student to be overwhelming. In this vein, Walker (1980:55) asserted:

> It seems safe to assume that faculty members have the same reaction to physical disability as other members of society, but it is also possible that they are more apt to feel guilt about these negative emotions.

Walker (1980:55 and 56) further postulated that attitudes toward the disabled learner are a direct result of early learning. With respect to learning-handicapped students, he proposed:

> . . . the loss most feared by an individual is the function or part of the body that he or she values most highly. Since intelligence and learning ability are valued highly by those who have chosen academia as their place of work, it is not surprising that faculty members should intensify their rejection of learning- handicapped students.

Walker (1980:53–62) divided educators into four specific categories with respect to their attitude toward the disabled learner. One end of the continuum is that of "wise ones" and the other, "rejectors." The "rejector" totally rejects the disabled learner as unsuitable for postsecondary education. The "wise one" views the disability as incidental and is honest in his relationship with the disabled learner. Another category is that of the "motherer" which category Walker views as closer to the negative than positive end of the continuum. Such educators are fearful of showing any aversion to the disabled learner and provide inaccurate feedback to the learner with respect to academic performance. This leads to "an unrealistic understanding of students' academic capabilities" (Walker, 1980:56). Still another category, which is found toward the positive end of the continuum, is the "surprised one" or "novice." While these educators are open to the concept of including the disabled learner in the learning process, they are unaware as to how to go about it. The "surprised one" simply does not know how to accommodate disabled students.

Often physically disabled adult learners feel that the barriers they face are more psychological than physical. They are fearful of the reactions and lack of sensitivity to the needs of the non–disabled population. Warnath and Dunnington (1981:240) alleged that "normal people often believe that a deficiency in one facility implies a deficiency in several." As a result, blind persons are often yelled at and persons in wheelchairs are assumed not to be academically inclined. Further barriers result from "the disabled learners' own ambivalence about their handicap and their need to rely on others to survive" (Warnath and Dunnington (1981:241).

In their study with respect to attitudes and behavior toward disabled students, Fonosch and Schwab (1981:234) found faculty members generally held positive attitudes toward the integration of disabled students into the college classroom setting. Those exhibiting the most positive attitudes in this respect were persons having had previous experience with disabled persons, female instructors, and educators in particular academic fields:

> Females were more likely to view themselves as similar to disabled persons . . . and to express a more positive attitude on classroom management issues . . . than males. Faculty members experiencing different kinds of contact with disabled persons had more positive attitudes toward persons with disabilities than informants experiencing little contact. Faculty members in education and social sciences held more positive attitudes toward disabled students in classroom management situations than faculty members from other disciplines (Fonosch and Schwab, 1981:235).

Stovall and Sedlacek (1983:325–330), in a study conducted with respect to the attitudes of male and female university students toward students with different physical disabilities, also found women to be more positive in this regard. The study further revealed that university students were more comfortable with blind students than students in wheelchairs in personal situations but more comfortable with students in wheelchairs than with blind students in academic situations.

The Regional Rehabilitation Research Institute on Attitudinal, Legal, and Leisure Barriers (1978), as outlined in Schmidt and Sprandel (1980:74 and 75), suggested fourteen characteristics that give rise to attitudinal barriers with respect to disabled persons. These are prejudice, ignorance, fear, insensitivity, bigotry, stereotyping, misconception, discrimination, dislike, invisibility, insecurity, discomfort, condescension, and intolerance. Schmidt and Sprandel (1980:75 and 76) defined attitudinal barriers as "ways of thinking or feeling that result in behavior limiting the potential of disabled people to be independent individuals."

Instruction

It is crucial that postsecondary instructors become competent in instructing and guiding physically disabled learners. Only by becoming competent in their vocation can physically disabled learners meet their true potential. Therefore, Alexander (1979) emphasized that no changes should be made in curriculum or course of study to accommodate the physically disabled learner, but that alterations may need to be made in classroom technique. Attention to such things as classroom lighting, noise level, facilitation of interaction with nondisabled peers, manner of testing, attention to mobility, availability of readers and special equipment, and flexibility of time may be essential to the disabled learner's success. Whereas, if curriculum were altered, the disabled learner might not receive adequate or complete instruction and may be ill prepared for the world of work.

With respect to flexibility of time, Alexander (1979:199) suggested that the instructor and student agree to a time limit and then hold to that agreement. He reasoned:

> In any job disabled people will have to meet deadlines, and they will be unlikely to do so if time limits have been ignored in their education. For similar reasons, when evaluating students' performance, instructors should resist any temptation to give preferential treatment to the disabled. To deal with the intense pressures of the job market and of demanding employers, the disabled must have a realistic view of their own abilities.

It is the instructor within a postsecondary institution who has the primary responsibility for adapting the curriculum in order to render it usable. Walker (1980:54) suggested that only academic personnel can modify teaching procedures and methods to make a given program as accessible as possible. However, Alexander (1979:20) hinted at a new twist in this exercise:

> The vast majority of college teachers have chosen their profession because they love the contact with students and the opportunity to do research. Nonetheless, as in any occupation routine can stifle creativity and inner development. In some respects, disabled students disrupt the routine by forcing an instructor to examine his or her teaching methods, and may encourage a re–evaluation of attitudes toward disabled people. Although the presence of a disabled student in a classroom may be a concern for the instructor who questions his or her ability to deal with such a student, it may be the instructor who learns the most by the end of the course.

Support Services and Curriculum Accessibility

Curriculum for the physically disabled adult learner must be usable or accessible before it can be of benefit. As previously outlined, instructors can do much to make knowledge available, but this must be tied in with support services which make such knowledge physically accessible.

Physically disabled adult learners ought to be encouraged to make a realistic assessment of their circumstances and capacities. Blosser (1980:35) pointed out that

> The student needs to know his or her limitations, capabilities, and interests and the special accommodations that may be needed for a career before making a final career choice.

Marion and Iovacchini (1983:131–135) assessed the efforts of 155 colleges and universities in the United States to achieve program accessibility for disabled learners. They found that many institutions achieved this goal by assigning responsibility for its attainment to one officer. This finding accords with the view advanced by Bryan and Becker (1980:9) that a special department or administrative unit should be established to work with the disabled.

Some of the services found to be offered by the institution that Marion and Iovacchini (1983:133) surveyed are

> attendant service, specialized van for transportation, adaptive physical education courses, wheelchair loan and repair service, organizations for handicapped students, accessibility maps, tactile signs and maps, priority

> class registration, and special parking permits and places. Other services included special counseling, provision for oral test taking, reading machines, braille computer readouts, braille paper, 'talking' calculators, braille and large-print reference materials, special projects in the arts, and telephone hookups for homebound students.

Yet another illustration of a special service is reported by Isaacs and Frederick (1980), who noted that Wayne State University in Dayton, Ohio, provides a wheelchair repair shop in its physical education building. Even greater accommodation of another type of disability is to be found in the recommendation of the Report of the Special Committee on the Disabled and the Handicapped (1981) that

> the Federal Government direct the Department of Secretary of State to encourage the Canadian Council of Deafness and its affiliates to initiate the establishment of an accredited sign language department at an English-speaking and French-speaking university which would:
>
> - Recognize that sign language is a distinct language and assist the development of curriculum and standards for credit courses to be taken by hearing persons similar to other language courses.
> - Provide sign interpreters for a variety of courses which will enable deaf students to follow regular courses (Canadian House of Commons,1981:105).

Further, physically disabled students must become aware of their legal rights and of information that is relevant to career choices. As Blosser (1980:35) observed

> Students' needs for specialized information are important and may include information about careers, the job market, rights of the handicapped in employment, job modifications, special equipment, myths bearing on employment of the handicapped, and employer attitudes. It is surprising, but one often learns that a disabled student has never been informed of his or her legal rights under the law, or about special equipment and technology for specific disabilities, or about the demands of specific careers.

Effective counselling is essential in making physically disabled learners aware of their legal rights and proficient in selecting a suitable training program. Counselling and psychological testing should be used to determine where the learner is at with respect to academic and vocational background and also with respect to the nature of the disability and the limitations so created. Bryan and Becker (1980:13) urged that

> the initial step in providing services to handicapped students is to identify the students, determine their capabilities, and assess their needs. Assessment is vital to sound planning for student services.

Albright, Fabac, Evans (1978:2) acknowledged that a first step in preparing an individualized vocational plan for special needs learners (i.e. physically disabled) is to determine the learner's present level of performance. The second step, that of developing an individualized vocational plan, based on the learner's current level of performance, requires answers to the following questions:

1. What are the needs of the learner in relation to the goals and objectives of the vocational course?
2. What special strategies and/or resources appear to be necessary to ensure student success?
3. What criteria will be used to determine student success?
4. How will student success be measured (Albright, Fabac, and Evans, 1978:1)?

The individualized vocational plan is a plan of action for the learner. The four components that make up this plan are:

> A statement of the student's present level(s) of performance. A description of annual goals and short–term objectives for the student. An identification of special services/assistance needed. A listing of the criteria to be used in, and a schedule for, evaluating student progress (Albright, Fabac, Evans, 1978:2).

The special needs or physically disabled learner then knows where he is, where he is going, what special assistance will be available to him, and the criteria which will be used to assess his progress.

The best developed curriculum will be of little use if it is not accessible and if the physical and psychological well–being of the learner is not taken into consideration. Therefore, Bryan and Becker (1980:17) warned:

> Developing a positive self–image and effective and appropriate coping skills are basic counseling goals both for handicapped and nonhandicapped students. It should be noted that adjustments to a disability is not a one–time experience but an ongoing process that takes a lifetime. It is not unusual for handicapped persons to experience periodic

> depression and anger as they continually strive to cope with a society and culture centered on the able–bodied.

Architectural Barriers

In the last decade, great strides have been made in reducing architectural barriers to the physically disabled; however, much remains to be done. Stilwell, Stilwell, and Perritt (1983) examined how Kentucky's state institutions became more accessible by reducing policy, social, and architectural barriers. The architectural barriers considered were building entrance ramps; library entrance ramps; parking facilities; accommodating living areas, and library/classroom facilities, and bathrooms; keyed elevators; low-level public telephones; and low-level water fountains. The study revealed that the institutes in Kentucky have responded and adapted to the needs of the disabled but in an uneven manner.

Stilwell, Stilwell, and Perritt (1983:343) offered the following recommendations for administrators, faculty, and disabled students:

1. Promote legislative and community awareness of the needs of students with handicaps.
2. Encourage handicapped students to ask more questions about institutional support and services.
3. Increase the awareness of institutions, faculties, and students of their collective abilities to meet the educational and social needs of students with handicaps.

Lifchez (1981) reported on a unique project whereby disabled persons act as design consultants to architectural students at the University of California at Berkeley. Five other schools were also invited to share in this experience. The curriculum focused on the architectural students' lack of knowledge with respect to the physically disabled and their environment requirements and the necessity to develop such knowledge. Lifchez (1981:19) explained the project this way:

> In these discussions our design consultants often had the spotlight. They had much to say about access, not just about ramps and braille but about the experience of being a physically disabled person; of being seen by

> others as 'ill,' 'inadequate,' 'incompetent,' 'needy;' of being excluded; of being stigmatized; of being perceived as less than human; and of the effect of the physical environment on one's trying to function in the world, not as the cripple perceived by others, but as a competent human being.

Designs presented by the architectural students provided insight into how their thinking with respect to access changed and evolved over the course. Lifchez (1981:23) further explained:

> this project, the day-to-day interactions and the designs students produced, taught us an elementary but profound lesson. The way in which we teach students about others greatly affects how they understand what we have taught and how they will eventually apply it while working professionally with others. In my view, there is no substitute for face-to-face contact in acquiring this kind of knowledge: physical disability and architectural access are meaningless unless taught within a context of human experience.

Lifchez (1981) observed that this project provided an understanding of why architectural barriers to the disabled are often overlooked. It also demonstrated that the interaction gave the architectural students a more accurate picture of the requirements of the disabled that they are likely to carry with them throughout their careers (Lifchez 1981:23).

Recreation

Mirell and Barrett (1980) reasoned that recreational opportunity is a realistic expectation of all, including the disabled, and not a fringe benefit for a few. They advocated that

> The emphasis should be placed on adapting the activity for the person, but only when it is necessary. For example, it makes no sense to have a wheelchair chess team when a student in a wheelchair can participate equally in the university chess club if the meeting room is accessible., Conversely, if that same student wishes to participate in basketball, then a wheelchair team is more realistic than attempting to adapt a traditional intramural basketball team (Mirell and Barrett, 1980:44).

Isaacs and Frederick (1980) reported on the physical education facility at Wayne State University in Dayton, Ohio. A special exercise room has been provided with exercise equipment and modified sports equipment. Accessible locker and shower facilities and pool area have been designed with a hydraulic lift available to allow disabled students to enter the pool.

A study reported by Nesbitt, Snyder, and Van Meter (1980) of 60 American colleges and universities with membership in the Association of Handicapped Student Services Programs in Postsecondary Education revealed that disabled students participated in a wide variety of recreational activities. Such activities and facilities as tandem bicycles for blind–sighted cycling pairs, horseback riding and rafting for quadriplegic students, mountain climbing for blind students, sailing for severe cerebral palsy students, volunteers who run with visually impaired joggers, skiing for the blind, and amputee skiing are examples of the wide range of recreational services offered. Nesbitt, Snyder, and Van Meter (1980:42) maintained

> . . . impaired people in the 1980s and beyond must be skilled in recreational consumerism, that is, be able to make qualitative and quantitative judgments on programs, services, facilities, personnel, and products. The potential exists for disabled students on campuses today to obtain the advocacy and consumerism skills to make an appreciable impact on their communities tomorrow. Recreation education is a primary means of providing the needed recreation consumer and recreation advocate skills.

The foregoing reports have shown that physically disabled persons can indeed participate in a wide variety of recreational activities. They also indicate that such activity is deemed valuable, if not a necessity, by a number of institutions.

Institutional Response

The response of institutions of higher education in meeting the needs of physically disabled adult learners has been to attempt to accommodate them within the mainstream. That this is so is clearly shown in a recently published directory which lists facilities and services to the disabled in over 2,300 colleges and universities in the United States and Canada (Thomas and Thomas, 1986). A description of each campus and the name of a contact person is provided. The kinds of disabilities each campus has provisions for are also listed, as well as proposed changes to accommodate the disabled.

McBee and Cox (1974:96–99) outlined three models for delivery of services to the disabled within the mainstream higher education setting. These models are highly centralized programs, loosely coordinated programs, and highly coordinated programs. In the highly centralized version, the facilities and staff operate as a separate entity. The loosely coordinated program plans few services, and a coordinator acts as a referral agent for services provided elsewhere on campus. In the highly coordinated plan, services and programs are developed and departments throughout the institute, as well as the community, are solicitated to develop resources.

Although mainstreaming appears to be the preferred alternative, Blosser (1980:33–41) reasoned that consensus is lacking on segregation versus mainstreaming with respect to career planning and placement for the disabled. Blosser (1980:35) pointed out that Section 504 in the United States (previously referred to) implies integration with a minimization of special programs. On one hand, a special counsellor can bring individualized, specialized expertise to bear and will be well aware of restrictions and strengths and provide a realistic assessment of both the job and the applicant. Conversely, mainstreamed services will reflect the real world where competition is high and strengths and weaknesses must be accurately assessed. A wider variety of jobs may be at the disabled learners disposal, but competition with able–bodied learners will make for intense competition. Therefore, it appears segregation and mainstreaming are very much unresolved issues.

High Technology

An exception to the dominant mainstream approach to the provision of programs and services for physically disabled adults appears to be in the field of high technology. Here a number of segregated approaches are in evidence.

Segregated Programs

Patillo (1986:98-111) identified and described eight computer training programs designed specifically for the physically disabled. He also described the P.H.O.E.N.I.X. Training and Development Foundation of Edmonton which, as previously noted, is now not operating. Six of the eight programs described are located in Canada with the remaining two located in the United States. Patillo (1986:98) found that

> Over the past four or five years, a number of training programs designed to teach the physically disabled to use micro–computers have been initiated throughout Canada and the United States. Some of these programs are run by regular training institutions in the public education system and others are run by non–profit societies and organizations. Some are operated as business ventures with the objective of generating a profit for the principles of the companies that offer them.

The eight schools identified by Patillo (1986:98-111) are the Pearson Computer Centre located in Pearson Hospital in Vancouver; the Van Isle Advanced Micro–Computer Business Training Program for the Physically Disabled in Nanaimo and Burnaby; the Control Data Institute, which is an education service of Control Data Corporation with courses available in Vancouver, Calgary, Edmonton, Willowdale, Ottawa, Halifax and Montreal; the Neil Squire Foundation, which is a non–profit society registered in British Columbia; the Alternative Computer Training for the Disabled (ACT) of Toronto; the Ontario March of Dimes Micro–Computer Applications Training Program of Toronto; the Resource Center for the Handicapped of Seattle, Washington; and the IBM Computer Programmer Training for the Severely Physically Disabled, which assists rehabilitation agencies to develop and maintain computer programmer training and placement throughout the United States. These programs all rely heavily on computers and involve computer training. The Control Data Institutes are developing a "Homework" program whereby individuals can be trained in their own homes via a computer terminal. The Neil Squire Foundation is involved in "conducting and stimulating research and development in the field of adapting computers and high technology to the needs of the physically disabled" (Patillo, 1986:103). As well, this Foundation offers computer training to physically disabled individuals in extended care hospitals throughout Canada. Taymans, Guenin, and Hill (1983:11) described a computer programming training program at the Maryland Rehabilitation Center, which was established in cooperation with the business, rehabilitation, and education communities. The graduates of this program have disabilities, which include paraplegia, quadriplegia, and visual impairment:

> The computer training program at the Maryland Rehabilitation Center is one of 24 such programs which IBM has helped to develop throughout the country. As of May 1983, more than 1,000 programmers have graduated from these programs and more than 750 have been placed in competitive employment. Like other programs funded through the Rehabilitative Services Administration's Projects With Industry, this project represents one of the most viable forms of vocational training of handicapped individuals. This training is based on the cooperative efforts of business and rehabilitation and results in the implementation of effective training programs which lead to competitive jobs for handicapped individuals (Taymans, Guenin, and Hill, 1983:11).

This program is one of the many IBM Computer Training for the Severely Physically Disabled that Patillo (1986) referred to.

Patillo (1986:111) concluded his review of these programs by suggesting

> There is a need to continue to encourage the development of such programs in most of the major centers in Canada. As affirmative action programs such as "Employment Equity" become more widely spread and as more and more companies computerize their operations, the opportunities for the physically disabled will multiply if they are computer literate, and are able to program and operate micro, mini and/or mainframe computers.

A program overlooked by Patillo was one offered by the State Technical Institute and Rehabilitation Center, Plainwell, Michigan. This specialized institution is operated by the State Board of Education through the Michigan Rehabilitation Services. The 32-acre campus of this school provides living and training facilities for up to 430 students. The stated purpose of this institute is to provide

> vocational evaluation, prevocational training, personal/social and vocational adjustment, skill training and other special services to Michigan's under-employed and unemployed, disabled adults. These services are designed to maximize the student's ability to live

> independently, obtain competitive employment, or significantly increase readiness for employment or other training programs (State Technical Institute and Rehabilitation Center Calendar, 1982:9).

Adaptations

Adaptations of high technology for use by the physically disabled has the potential to improve their life chances and satisfactions. However, current adaptations are relatively limited in scope. Few address the scope or breadth of high technology envisioned in the following definition:

> The term high technology generally refers to new, rapidly expanding technologies such as those involved in advanced computer design, micro electronics, genetic engineering, and laser optics. The term is not precise, and it can also include updated technologies in which there is a significant advance over, or departure from, the past. It is also used loosely to describe functional aesthetic, as in high technology design (The Academic American Encyclopedia 10,1985:162).

Writers like Nave and Browning (1983:364), who asserted that the "implications of this new technological era are far–reaching," are referring primarily to computer applications. Given the current state of the art, it is computers that have "the potential to transform the quality of life for the disabled" (Cranshaw, 1985:1).

Accordingly, a plethora of information and exhortation is flooding the market with respect to computer technology and the disabled. Witness statements like this one excerpted from a recent book:

> And as to what personal computers can do for disabled people--well, personal computers can make the difference between communication and isolation, between productivity and non–productivity, between independence and dependence.
>
> This may seem like a broadly sweeping statement, but consider:
>
> The deaf can now call anyone who has a computer and just 'chat.' Before computers, they could only call relatives and other deaf people who happen to have the same special communication devices.
>
> The blind, through synthesized voice output, have access to all the information available to personal computers--including news, research, correspondence, gossip, and thousands of other available services on data banks and bulletin boards. Before computers, the blind depended on the radio, talking books, Braille, and people who read to them.

> Computers allow people with muscular, motor and movement disabilities to work, create and communicate far more effectively than ever before. Disabled people who have control of only an eyelid, finger, toe, or eyebrow, can communicate, with unlimited vocabulary, and no outside help.
>
> People with learning disabilities find computers infinitely patient and thoroughly non–judgmental.
>
> Voice synthesizers give a voice to the voiceless (McWilliams, 1984:14).

The McWilliams' book, Personal Computers and the Disabled, also describes in detail the computers adapted to particular disabilities. Prices and outlets are also listed. However, a word of caution is in order with respect to computers. Willson (1983), under contract with Alberta Education, prepared a report concerning microcomputer courseware in special education. Willson found that educators may be purchasing computers and courseware without being aware of the special requirements necessary to make computer-aided instruction viable for the needs of special education. He also found a trend toward multi–media, multi–sensory, and multi–learning modality approaches in special education.

Similarly, Sununu (1986:221 and 222) argued that careful planning should be undertaken by school districts about the use of technologies before any equipment is purchased to ensure that such expenditures will help to achieve desired objectives. Sununu also recommended that teachers learn about the use of technology in their curriculum areas and that educational professionals should share their knowledge and ideas relative to the use of technology. As well, Sununu suggested that independent institutes "for research on and demonstrations of technology in education" be developed. These institutes should be independent of institutes of higher learning and departments of education.

Fourteen recommendations were made by Willson (1983:2) with respect to the courseware in special education. They included:

> The establishment of a central location of evaluation and information dissemination with a stable computer hardware configuration for testing or demonstration is recommended. This microcomputer based system should provide an electronic bulletin board information exchange for all special educators especially rural ones, and interested individuals. Courseware expansion in the developmentally handicapped area is recommended with the possibility of this being done within Alberta. Maintenance of the existing courseware catalogue produced in this study is recommended.

The foregoing study found that computer-assisted instruction for disabled learners has proved to be a "a surprisingly successful way of educating the handicapped whenever it has been tried" (Willson, 1983:13). However, little evaluation of courseware and related material has been conducted. Thus, Willson developed a courseware catalogue, which can be used as a first step in becoming aware of the available material and its utility or value.

Apart from high technology in special education, Steier (1985:205) explored the use of computer technology in education and concluded that a commitment to computer technology would continue. Nonetheless, he also cautioned that in exploiting the use of computers for educational purposes, a need prevailed for "identifying, communicating, and implementing those activities which are truly beneficial to education."

Goodfriend and Parra (1980) gave attention to the role of technology in the lives of the homebound and in particular to the educational aspects of their lives. The Queensborough Community College of The City University of New York has taken advantage of this technology. Many of the homebound students of this College are long-term residents of local hospitals or nursing homes:

> The homebound program includes course instructions, academic and financial aid, personal advisement, tutorial assistance, and supplemental instructional aids (Goodfriend and Parra, 1980:20).

Goodfriend and Parra (1980) also discussed the use of computer terminals by the homebound to provide typewriting services. The possibilities for individuals working out of their home are many and indeed a psychological springboard for the homebound by providing an opportunity to be self-sufficient.

Therefore, the need for adaptation to meet individualized needs is viewed as imperative. It is seen as:

> An accommodation (also called an adaptation) is a modification of a work place or the work itself which enables a handicapped person to perform. It can make it possible for such a person to succeed in an occupational area which originally seemed inappropriate because of physical limitations (Creighton, 1981:55).

Creighton (1981:56) outlined four steps that should be taken by educators of the physically disabled to accommodate them. She stated these to be identification of the problem, thinking creatively, trying solutions, and re–evaluating the solutions periodically. Adaptations like an IBM key guard, which prevents fingers from sliding off typewriter keys, and a mouthstick, to facilitate typewriting, are examples of accommodation. Creighton (1981:56) suggested that creativity is the answer, and often the solution is a simple one.

As well as equipment which may be individually designed, more and more equipment is becoming commercially available for the disabled. Bryan and Becker (1980:18 and 19) listed a number of these:

> Perkin's Brailler is used by the blind; it produces braille symbols.
>
> Magnifying lenses are used by persons with partial vision. Available in a variety of sizes and strengths, only lenses which keep distortion to a minimum should be selected. An opthamologist should prescribe such lenses on an individual basis.
>
> Visual–Teck or Apollo is a closed–circuit television system used by partially sighted students which employs a magnifying lens to enlarge printed material and allows for reversal of white print on a black background.
>
> Electric flash automatic page turners allow a quadriplegic or an amputee to turn the pages of a book by means of a microswitch operated by a mouth or foot control.
>
> TTY or MCM Teletypewriters are a form of telephone communication system that can be used by the deaf to communicate via standard telephone lines.
>
> Large print typewriters are used by the partially sighted and produce large print.

Variable speed tape recorders, whether of the reel–to–reel or cassette type, have a variable speed control allowing listening time to be compressed and are frequently used by the blind.

Speech compressors electronically compress speech by filtering extraneous sounds with minimal sound distortion.

One–handed typewriters with specially adapted keyboards allow the one–handed amputee or the hemaplegic to type as many as sixty words a minute.

Talking calculators are frequently used by the blind.

Typewriter shields, which can be attached to a standard IBM typewriter, prevent the user from striking more than one key at a time; they are useful to spastic students and others with fine motor dysfunctions.

Thermoform machines can be used to make duplicate copies of braille materials.

However, Cranshaw (1985:2 and 3) warned that obstacles prevail for physically disabled adults wishing to use computers extensively. The cost and accessibility of computers are the two main problems. Costs include not only initial costs but subsequent ones arising from setting up and maintaining a computer system. Many of these costs derive from the specialized and individualized needs of the disabled individual. Accessibility can be hindered by the lack of training available to the physically disabled who require careful and detailed instruction in the operation of their equipment. Fortunately, supplementary funds seem to be becoming available through private sources such as "from parents or service clubs or from school fund-raising projects" (Cranshaw, 1985:52).

Future Directions

The physically disabled adult learner of the future is likely to actively pursue a postsecondary education to a greater degree than ever before. Nesbitt, Snyder, and Van Meter (1980:42) observed a significant increase in the attendance of disabled students in institutes of higher learning, and this trend is expected to accelerate. This increasing participation rate reflects the efforts of institutions to provide access and equal opportunity which is viewed as an educational necessity and political right (Nesbitt, Snyder, and Van Meter, 1980:42). Moreover, The Obstacles Progress Report, prepared by the Special Committee on the Disabled and the Handicapped (1982), encouraged the provinces of Canada to include education as a basic human right.

Schmidt and Sprandel (1980:76) predicted five new directions with respect to the physically disabled adult learner in the higher education environment:

> 1. An increasing number of handicapped persons will be seeking a postsecondary education, because of the increased accessibility resulting from government mandates and because of their natural desire to reach higher goals in life and to enter more challenging fields.
>
> 2. Handicapped persons will enter a wider range of occupations as postsecondary institutions become familiar with ways of making programs available to persons with handicapping conditions through ingenuity and resourcefulness in modification of facilities and/or programs.
>
> 3. As more handicapped persons become part of more work and social situations, they will feel less 'different,' while the people they interact with will view them as less 'different' and the attitudinal barriers that affect handicapped persons will begin to break down.
>
> 4. A natural consequence of the preceding developments is that an increased number of handicapped students will take part in the full range of activities that we associate with student services, including sports, recreation, social organizations, and so on. This will necessitate a different kind of programming from the programming that student development specialists have traditionally done, and may thus necessitate greater resources of personnel and money.
>
> 5. Because of the increased participation of handicapped persons in campus activities and because of the insufficient training offered by student personnel programs . . . , new training opportunities will be developed, both for in-service professional development and for initial training. While these training programs will have some similarity to those offered in vocational rehabilitation programs, there will also be some major differences, owing to the holistic emphasis on the development of the whole student.

The Klufas Report on Services to Disabled Persons, prepared by the Alberta Task Force on Services to Disabled Persons (1983), suggested that perspectives of able-bodied citizens towards disabled citizens is changing just as perspectives of disabled citizens towards themselves is changing.

> The key change is from aiding disabled persons with 'existence' to supporting their opportunities for 'living' --from merely coping with the need to somehow care for disabled persons to helping them lead lives that allow the full use of their social, emotional, and creative capabilities. It's a change from a 'pathological' approach, focused on the disability itself, to a 'holistic' approach that looks at the total individual. As a result of that change, much progress has been made during the past ten years towards integration of disabled individuals into society (Alberta Task Force on Services to Disabled Persons, 1983:11).

This Task Force (1983:21) emphasized that the educational needs of disabled persons are not different from those of others. Government and the education system must help them to achieve their optimum potential. The Report also stresses that vocational programs should not be offered to disabled learners in isolation from academic and social/life-style education. Among its many recommendations, the Task Force (1983:23–29) proposed that community colleges train teacher aides to work with the disabled learner, universities provide competency–based education models for special education students, and in–service training programs for teachers include orientation and skill training for work with the disabled. In addition, it recommended that an education materials' resource center be made available, that Advanced Education provide educational opportunities to disabled persons 18 and over, that a provincial education and employment policy be developed, that coordinated assessment be carried out for disabled students in residential, educational, and vocational programs, that greater emphasis be put on leisure and social skills for disabled persons, and that funding for private schools for disabled persons be funded as public schools which is on the basis of students registered.

The Rehabilitation Digest (1986:8) reported a project being conducted at Dawson College, Montreal, to identify personal and academic factors which either facilitate or hamper the integration of physically disabled individuals into institutions of higher education. The goals of this project are

1) to investigate the cognitive variables that mediate social anxiety and facilitate social interaction between physically disabled and able-bodied college students; 2) to prepare and empirically evaluate a cognitive modelling intervention designed to make able-bodied students more comfortable and more willing to interact with physically disabled students; 3) to investigate the components of effective interpersonal behaviour between disabled students and their professors; and 4) to prepare a brief manual, based on the findings of the studies, of effective interaction behaviour by both professors and disabled college and university students.

The results of this investigation comprise a number of recommendations for educators as follows:

1. Be flexible with content and format of assignments and exams (e.g., oral, braille, audiotaped, written) and give extra time if needed.

2. For students with a hearing impairment give lectures slowly, loudly, with open mouth not covered by hand or book and repeat if necessary. Face class and not the blackboard, avoid standing behind student and walking back and forth in front of class. Write all important material on the blackboard or overhead and be sure that material is written clearly and is well organized.

3. Be a good teacher in general (e.g., make lectures and notes easy to understand, be open minded when dealing with student, understand and adapt to the needs of individual students).

4. For students with mobility impairments ensure that class, lab, building, field trip, etc. is in an accessible location.

5. Hand out typed or printed notes.

6. Be supportive but do not be overly solicitous; treat the student as any other student whenever possible.

7. Meet with student regularly and give extra time outside class.

8. Find out how the student's disability can affect learning in your course from: colleagues with experience, students, organizations, and the literature.

9. Allow taping of lectures.

10. Discuss teaching and learning alternatives with students, take strengths and weaknesses into account and make adjustments if these are needed.

11. For visually impaired students, make sure required materials (e.g., assignments, handouts) are available on tape or in braille.

12. Approach the student to ask if adjustments are necessary and to indicate that you are available to help.
13. Arrange for other students to help (e.g., mobility, tutoring, study, readers, notes, etc.).
14. Encourage other students to interact with disabled student (e.g., by assigning students to work in pairs, having students work in small groups).
15. Give an outline of the course, explain course content and requirements clearly, be exact about necessary reading material and provide this information early in the term to allow for advance planning by the student.
16. Make sure that classroom/lab furniture is appropriate for wheelchair users.
17. Allow choice seating for disabled student.
18. Individualize the course for the disabled student (e.g., offer a reading course or an individualized program, arrange special viewings of audio-visual materials for student).
19. Know about services available for disabled students and tell them about these.
20. Lobby colleagues and administrators for equipment and tell student to demand equipment.
21. For students with a visual impairment, use models, visual relief maps, replicas, etc. to convey ideas.
22. Use an amplification system with hearing impairment students. (Fichten and Amsel, 1986:7 and 8).

With respect to the role of high technology in the learning environment of the physically disabled adult, Patillo (1986:129) recommended that:

> Computer literacy programs and courses should be encouraged for the physically disabled of all ages in a variety of settings, ranging from rehabilitation hospitals to community colleges.

Patillo (1986:5) argued that high technology has enabled physically disabled persons to compete on equal terms with those who do not have disabilities.

Summary

The following propositions were derived from this review of the limited literature related to the research problem investigated in this study:

Proposition 1: Physically disabled adults have individualized and specific learning needs like able-bodied people.

Proposition 2: Physically disabled adults derive their self-concept from their own and others' attitudes towards their disability.

Proposition 3: Physically disabled adults do not require a different curriculum design than the able-bodied.

Proposition 4: Physically disabled adults require adaptive and flexible methods of instruction different from those employed with able-bodied people.

Proposition 5: Physically disabled adults require more support services than able-bodied people.

Proposition 6: Physically disabled adults are no longer as disadvantaged in comparison to able-bodied people by architectural barriers.

Proposition 7: Physically disabled adults require recreational activities to enhance the learning environment as do able-bodied people.

Proposition 8: Physically disabled adults can derive special benefits from the use of high technology in their learning environment.

Proposition 9: Physically disabled adults with high technology training can become more productive members of society and happier persons.

Proposition 10: Physically disabled adults are being increasingly accommodated in regular programs by mainstream institutions.

Proposition 11: Physically disabled adults are being offered high technology training programs in segregated facilities.

The foregoing propositions were compared with the propositions developed from the analysis of data in the current study.

Chapter III will present the research design of the study.

CHAPTER III

Research Design

The design used to conceptualize the research problem and give direction to the study is outlined in this chapter. The four aspects of the design are orientation, nature and sources of data, instrumentation, and quality controls.

Orientation

This is a qualitative study. As Bogdan and Biklen (1982:2) pointed out such studies

> share certain characteristics. The data collected has been termed *soft* , that is, rich in description of people, places, and conversations, and not easily handled by statistical procedures. Research questions are not framed by operationalizing variables; rather, they are formulated to investigate in all their complexity, in context. While people conducting qualitative research may develop a focus as they collect data, they do not approach the research with specific questions to answer or hypotheses to test. They are concerned as well with understanding behavior from the subject's own frame of reference. External causes are of secondary importance. They tend to collect their data through sustained contact with people in settings where subjects normally spend their time.

These characteristics--"soft" data, broad focus, and a search for understanding based on the perceptions of the informants--are evidenced in this inquiry.

The use of a qualitative approach in this investigation has permitted a broad exploration of the thoughts and feelings of physically disabled adults, their significant others, and experts in the field of physical disability with respect to high technology learning experiences. This study has delved into the world of physically disabled adults to seek an understanding of the role such experiences may play for them in a holistic sense.

Purpose of the Study

The primary purpose of this study was to investigate what information should be considered for problem structuring and policy development in the area of high technology learning experiences and physically disabled adults. In this pursuit, a number of more specific categories were developed to focus the investigation, namely:

1. The existence and adequacy of high technology learning experiences for physically disabled adults.
2. The nature of special requirements for physically disabled adults in a high technology learning experience.
3. The rationale that would prompt a physically disabled adult to undertake a high technology learning experience.
4. Obstacles to the availability of high technology learning experiences for physically disabled adults.
5. Efforts physically disabled adults would be prepared to undertake in order to be able to engage in a high technology learning experience.
6. The relationship between the degree of physical disability and the appropriateness of a high technology learning experience.
7. The criteria perceived to be relevant in determining the best type of high technology learning experience.
8. The possible benefits that physically disabled adults could derive from a high technology learning experience.

Paradigms

A paradigm is a world view or a method of theorizing. Burrell and Morgan (1979:23) suggested

> It is a term which is intended to emphasize the commonality of perspective which binds the work of a group of theorists together in such a way that

> they can be usefully regarded as approaching social theory within the bounds of the same problematic.

Based on this definition, Burrell and Morgan (1979:24) have developed four paradigms into which they feel all social theorists can be located. By clarifying where one "fits" in relation to these paradigms, helps a researcher to develop a personal frame of reference. In turn, this serves as a "tool for establishing where you are, where you have been and where it is possible to go in the future" (Burrell and Morgan, 1979:24). In other words, the perspective is developed.

The four paradigms developed by Burrell and Morgan (1979:25-35) are functionalist, interpretive, radical humanist, and radical structuralist. The functionalist approach takes an objectivist stance and stems from the sociology of regulation. While the interpretive paradigm also stems from the sociology of regulation, it applies a subjective approach to the social world. The radical humanist paradigm applies a subjectivist approach to the sociology of radical change, whereas the radical structuralist paradigm is also an advocate of the sociology of radical change but from an objectivist viewpoint.

Since this study is a qualitative investigation, an interpretive perspective or operational posture was selected. Denzin (1983:129) explained that the interpretivist is concerned with the study of "meaning, motive, intention, emotion, and feeling" and how such are experienced and organized by individuals living and working together. The scenarios people construct become the central focus of the interpretivist's work. The world is viewed as not being independent of perception. Since the qualitative approach to study is concerned with people's own frame of reference or perceptions, then the qualitative approach is well suited to the interpretive perspective. As acknowledged by Denzin (1983:130)

> Qualitative, ethnographic, and thick, fine-grained description of the life world represent the dominant methodological interests in interpretive investigation.

The social world, then, becomes "an emergent social process which is created by the individuals concerned" as described by Burrell and Morgan (1979:28). The interpretive paradigm suggests that what is considered to be a social reality does not actually exist in any concrete sense. As pointed out by Morgan (1980:608), social reality is the result of subjective and inter-subjective experiences of people. In support of this position, Burrell and Morgan (1979:28) stated

> The interpretive paradigm is informed by a concern to understand the world as it is, to understand the fundamental nature of the social world at the level of subjective experience. It seeks explanation within the realm of individual consciousness and subjectivity, within the frame of reference of the participants as opposed to the observer of action.

In conjunction with the foregoing, Denzin (1983:133) recognized that the interpretivist becomes absorbed with the world being studied. Only in this way is interpretation of human experience possible. In support of this contention, Morgan (1983:26) described the role of the interpretivist:

> The task of social analysis becomes one of presenting and interpreting life as a sequence of symbolic interaction, in a way that shows precisely *how* individuals express and construct their presence in the world. The only facticity that interpretive inquiry can presuppose is the individual's presence in the lived world. Analysis must proceed from there, to show how every slice of social life carries its own logic, sense of order, and structure of meaning.

The interpretive paradigm approach has allowed the informants in this study to express their perceptions relative to the purpose of this study and thereby describe their niche in the social world.

Type of Study

The multi-case study scheme was applied to this research since more than two subjects will be studied (Bogdan and Biklen, 1982:65). While the multi-case study scheme allows for more generalizability than a case study, it is basically an aggregation of individual case studies. Bogdan and Biklen (1982:59) suggested that a case study is best depicted by a funnel. The researcher moves from a broad exploratory beginning to directed data collection and analysis. The study develops a focus as it progresses. In the initial stages, the researcher searches for suitable data sources and gives consideration to the next step. Data collection begins, and as this continues, thought is once again given as to how to proceed with the study. The design is modified on a continuous basis until specific decisions are reached, and research activities are narrowed and become directed in nature.

The advantages of a case study research scheme are many. Lincoln and Guba (1985:359-360) suggested that

1. The case study is the primary vehicle for emic inquiry. The naturalistic inquirer tends toward a reconstruction of the respondents' constructions (emic).
2. The case study builds on the reader's tacit knowledge, presenting a holistic and lifelike description that is like those that the readers normally encounter in their experiencing of the world, rather than being mere symbolic abstractions of such.
3. The case study is an effective vehicle for demonstrating the interplay between inquirer and respondents.
4. The case study provides the reader an opportunity to probe for internal consistency.
5. The case study provides the "thick description" so necessary for judgments of transferability.
6. The case study provides a grounded assessment of context.

A further explanation of the emic research perspective, facilitated by the case study research design, is offered by Morey and Luthans (1984:29):

> The term emic has . . . come to denote a general orientation in research centered on the native, that is, the insider's or, as anthropologists call it, the "informant's" view of reality. Thus, the emic approach emphasizes native or respondent categories and meanings in general and native rules for, or respondent behavior, in particular.

In relation to this study, the multi-case study scheme has provided an opportunity for the 25 informants to express their perceptions of their experiences. This approach gives foremost attention to the perspectives of the informants. They are allowed to speak for themselves. The case study method also provides an understanding of the context from which the thick description is derived and thus enriches its meaning.

Nature and Sources of Data

The perceptual nature of the data and the data sources are considered in this section.

Nature

Since the primary source of data for this study is the perceptions of the informants, it is helpful to have an understanding of what perceptions are and how they are developed. While Litterer's definition of perception is used for this study, Bosetti's view (1973:36) adds further meaning to this concept: He defined perception as

> a process which an individual utilizes to give structure, stability, and meaning to his world of experience. His rational behavior involves imposing on complex reality a structure which is consistent with his own needs and expectations. In creating for himself a structured world, the individual attributes significance to his immediate environmental situation by relating it to his past experiences and present purposes.

Furthermore, it is postulated by French, Kast, and Rosenzweig (1985:147) that:

> Perception is basic to understanding communication and behavior because it is the means by which stimuli affect an individual. A stimulus that is not perceived has no effect on behavior. Another key idea is that people behave on the basis of what is perceived rather than what is.

Peters and Austin (1985:71) take this notion a step further by this assertion:

> A "mere" perception problem. The real problem is that perception is all there is. There is no reality as such. There is only perceived reality, the way each of us chooses to perceive a communication, the value of a service, the value of a particular product feature, the quality of a product. The real is what we perceive.

Consequently, to develop an in–depth understanding of a particular issue, it is critical to delve into perceptions of individuals since they form the basis of human behavior. As expressed by Litterer (1973:106), "people act on the basis of what they think they see or understand."

A perception formation model developed by Litterer (1973:103) will be utilized to provide an understanding of how perceptions are developed. French, Kast, and Rosenzweig (1985:147–148) interpreted Litterer's model in the following succinct way: The original factors influencing perception are such things as stress, group pressure, and reward systems. Past experience and individual value systems play a significant role in the interpretation of stimuli. The basic processes or mechanisms of perception formation are selectivity, closure, and interpretation.

More comprehensively, Litterer (1973:106–108) suggested that a basic factor in perception is the ability to transpose limited amounts of facts and pieces of information into a complete picture. This process, known as closure, plays a significant role in perception development. The picture developed exhibits a significant degree of internal consistency inasmuch as its parts seem to fit together in a way that makes sense. Consistency is developed in a number of ways. Some ideas or cues are so influential that they serve as a central organizing point regardless of when they might occur. In the event such a centrally important cue is missing, then perceptions may be dominated by information that was received first. Information received at a later date may be interpreted or viewed in such a way as to make it fit the already developed picture. This perceptual organization of a person may persist over significantly long periods of time.

Furthermore, Litterer (1973:107) noted that external factors also influence an individual's perception. The factor of stress is important. Group pressure is a factor whereby individuals find their opinions at variance with others in the group. Interaction with individuals with whom one is sharing or comparing opinions can have a significant influence on one's perception. Another factor to influence perception is the expectations people have of an individual filling a particular role. Reference groups also play a role in forming perceptions. As well, an individual's organizational position affects how an individual looks at things. Reward systems also play a role in perception.

Three mechanisms are involved in perception formation. Selectivity is the first of these wherein particular pieces of information are separated for future consideration. The second is closure, as previously discussed, whereby bits of information are compiled into a significant whole. The third mechanism is interpretation. Previous experience aids in the judgment of information collected. "Information admitted by selectivity is given meaning by either closure or interpretation, or both; and , of course, both feed back to determine what information will be selected" (Litterer, 1973:107–108).

The perceptions of the informants of this study, relative to physically disabled adults and high technology learning experiences, were largely influenced by external factors other than those outlined by Litterer (1973:107), although not to their total exclusion. It was felt that such factors as age, schooling, high technology learning experiences, and nature and severity of disability were of particular significance in shaping the physically disabled adult informants' perceptions central to this investigation. Employment background, family responsibilities, and current station in life would, of course, also have some significance in the development of perceptions relative to the purposes of the study. Age, schooling, high technology learning experiences, and employment background would have particular significance for the expert informants as well since it would be through their schooling and employment that they would have developed their expertise or understanding in the area under study. Since many of the significant other informants were family members of the physically disabled adult informants, family responsibility and current station in life would be significant in developing their perceptions. Through the influence of such external factors, the informants of this study would have developed their perceptions of the subject at hand.

These changes are illustrated in Figure 3.1, which is an adaptation to the model developed by Litterer (1973:108).

With the exception of the last two factors, these external factors can be applied to the significant others in this study and to the experts in the field of physical disability. However, five of the twelve expert informants were also physically disabled so that the last two factors would also be significant for them. The model relates to the investigator's perception most particularly with respect to her high technology learning experiences and employment background. Researcher bias will be further discussed later in this chapter when the concept of confirmability is addressed.

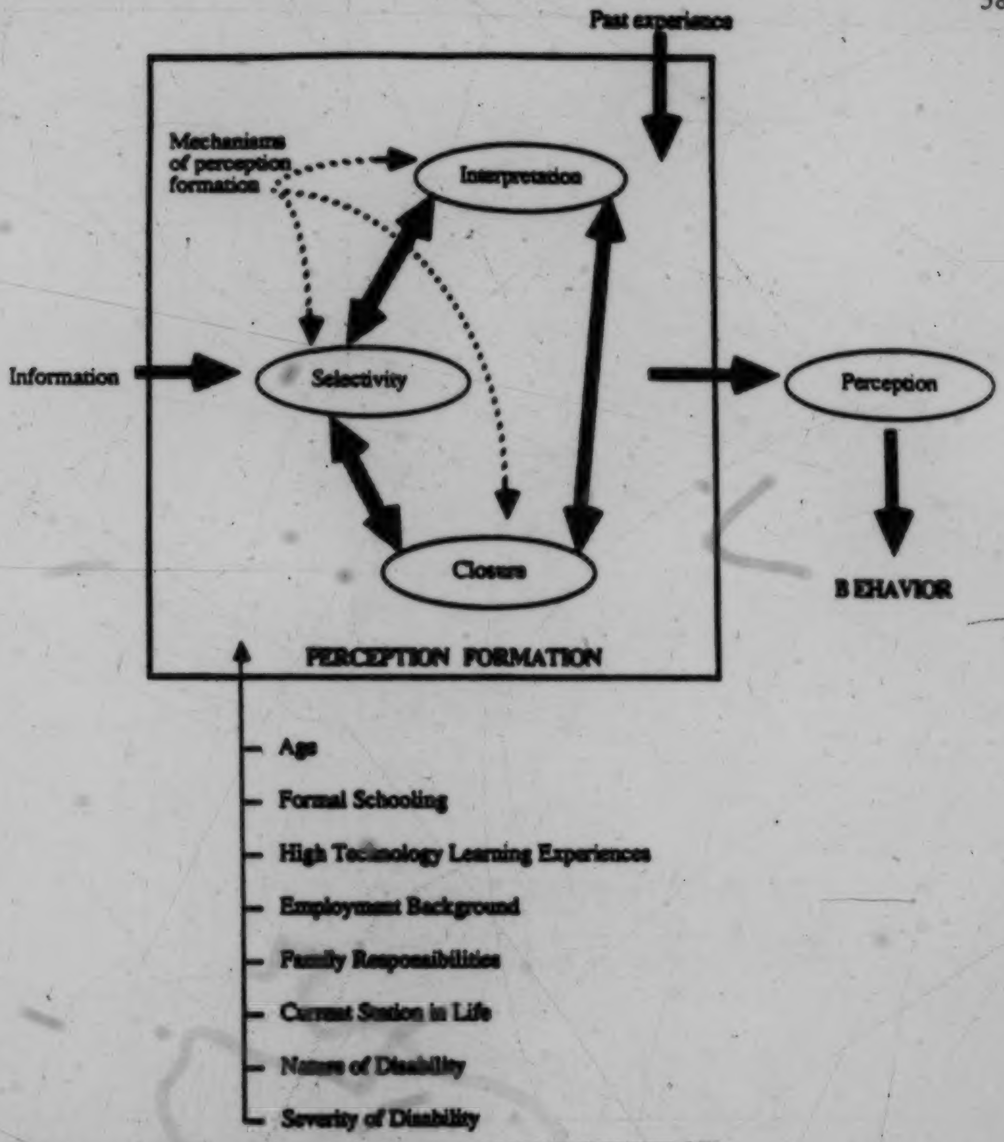
As pointed out by Johnson (1987:210), individual's perceptions of an event are often different. He cautioned

> researchers would do well to draw upon a variety of perspectives and to recognize the limitations of their own and others' perceptions when forming impressions and making decisions. For many researchers . . . reliance upon multiple data sources may increase the convergence of perceptions and thus the likelihood of discovering a shared or objective reality.

Since the informants in this study bring three different perspectives to bear on the issues at hand, a convergence of perception and reality has been approached.

The concept of stability is of concern when relying upon informant perceptions in research. In the mid-1950s, Allport (1955:576-612) developed eight major generalizations which have remained to this time but have also remained to some extent unresolved. One of these generalizations addressed stability. Johnson (1987:208) summarized these generalizations:

> (a) individuals aggregate and interrelate multiple understandings of events; (b) these "perceptual aggregates" are organized within limiting conceptual boundaries; (c) perceptions are assembled over time; (d) although general order and stability prevail, some perceptual inconsistencies are tolerated; (e) perceptions remain relatively constant over time; (f) there is a tendency to return to original "steady state" perceptions following the disruption of new impressions; (g) impressions are weighted unequally in perceptual aggregation; and (h) although perceptual aggregates sometimes conflict, usually they mutually support higher-order perceptual generalizations.


Past experience
Mechanisms of perception formation
Interpretation
Information
Selectivity
Perception
Closure
BEHAVIOR
PERCEPTION FORMATION
Age
Formal Schooling
High Technology Learning Experiences
Employment Background
Family Responsibilities
Current Station in Life
Nature of Disability
Severity of Disability

(Adapted from: French, Kast and Rosenzweig, 1985:149)

Figure 3.1

Perception Formation

Therefore, while various components responsible for perception may shift from time to time, perceptions tend to remain stable and original perceptions remain constant over time.

Nonetheless, Johnson (1987:223) pointed out that researchers "have an obligation to remind readers that their findings portray reality only as it is viewed by themselves and their chosen informants." At the same time, solace can be taken from the fact that "perceptions, rather than objective reality, direct most attitudes and responses" (Johnson: (1987:223). It is the attitudes and resultant responses of the informants in this study that are being investigated and explored in order to address the central issues of this study.

Sources

Data were derived from two sources--selected informants and related documents.

Informants. The informants in this study include physically disabled adults who were former P.H.O.E.N.I.X. students, their significant others, and experts in the field of physical disability.

The sampling method used to select the physically disabled adult informants of this study was a purposeful sampling approach. According to Bogdan and Biklen (1982:67), you "choose particular subjects to include because they are believed to facilitate expansion of the developing theory." This technique was also recognized by Miles and Huberman (1984:37). They acknowledged that

> Multi-site studies are especially appealing because they can purposively sample, and thereby make claims about, a larger universe of people, settings, events, or processes than can single-site studies. (Miles and Huberman, 1984:37)

Field and Morse (1985:57) draw attention to the fact that "there are key people who have more insight . . . than others" and who are "more receptive to the interviewer and more articulate than others" and as a result are better informants. It is critical to select informants, therefore, according to their role, knowledge or insights, the amount of trust developed with the researcher, and their willingness to participate in the study (Field and Morse, 1985:58). Likewise, Spradley (1979:49) noted that researchers "want to interview people who have expert knowledge, informants who have a first-hand, current involvement in the cultural scene." He (Spradley, 1979:49) pointed out that "good informants know their culture so well they no longer think about it." The informants selected all bring first-hand, current involvement to this study as either a physically disabled adult, a significant other in the life of a physically disabled adult, or as a current expert in the field of physical disability.

The snowball sampling technique was used to select the significant others and experts in the field of physical disability who participated in this study. The snowball sampling technique occurs as stated by Bogdan and Biklen (1982:66) when the first person interviewed recommends others. Field and Morse (1985:58) also recognized this technique:

> Once a relationship with a key informant has been established, the data acquisition will frequently snowball. The first informant will often introduce the researcher to other informed persons.

The informant selection process for this study is elaborated in Chapter IV.

Documentation. While documentation was a limited data source and used primarily for selection purposes and in the preparation of vignettes of the physically disabled adult informants, as outlined in Chapter V, the researcher was alert to obtain access to student files before the closure of P.H.O.E.N.I.X. in June 1985. This process is referred to in Chapter IV.

Instrumentation

Interviews were the dominant strategy utilized to collect data for this study. Bogdan and Biklen (1982:135) described an interview as a purposeful conversation, usually between two people (but sometimes involving more) that is directed by one in order to get information.

As noted by Bogdan and Biklen (1982:71), schedules and interview guides are "most commonly used in multi-subject studies and multi-site research work." This approach, therefore, seemed most appropriate in this multi-case or multi-subject study.

The interview is described by Spradley (1979:55) as a "particular kind of speech event." It is not a lecture nor a job interview, but Spradley (1979:55) identified it more closely with a friendly conversation. An individual may well be interviewed in the course of a conversation without being aware of it. However, Spradley (1979:59) cautioned that it is an underlying assumption that the interview is "supposed to go somewhere." It is the responsibility of the researcher to make the purpose clear and to direct the interview so that discovery is made relevant to that purpose. In support of this contention, Werner and Schoepfle (1987a:302) suggested that an interview is "an information-providing speech exchange in which some of the knowledge of the consultant is given to the interviewer," and likewise cautioned that such a "speech exchange must be informative."
Nonetheless, Bogdan and Biklen (1982:71) insisted that

> In keeping with the qualitative tradition of attempting to capture the subjects' own words, and letting the analysis emerge, interview schedules and observation guides generally allow for open-ended responses and are flexible enough for the observer to note and collect data on unexpected dimensions of the topic.

This approach was followed by the researcher during an open-ended interview process, which will be described in Chapter IV.

Bogdan and Biklen (1982:2) also advocated that

> The qualitative research approach demands that the world be approached with the assumption that nothing is trivial, that everything has the potential of being a clue which might unlock a more comprehensive understanding of what is being studied.

On balance, it appears that emphasis should be placed on understanding the data being gathered and not on following a particular interview format.

Quality Controls

The open-ended interview guide was refined in a pilot study. The concept of trustworthiness was addressed and care was taken to ensure that ethical standards were met.

The Pilot Study

The five open-ended interview guides developed to interview the informants in this study (Appendix C) were developed in consultation with the researcher's supervisor. They were subjected to rigorous analysis and repeated revision. Following this process, the interview guides were tested in a pilot study. This pilot study provided insight into the amount and nature of data that could be derived utilizing the interview process. The pilot study also revealed those questions that were ambiguous and required clarification, the proper sequence to be employed, and approximately how long each interview would take. In addition, this exercise provided the researcher with an opportunity to develop a "feel" for the interview scenario and technique. As maintained by Spradley (1979:58)

> It is best to think of ethnographic interviews as a series of friendly conversations into which the researcher slowly introduces new elements to assist informants to respond as informants. Exclusive use of these new ethnographic elements, or introducing them too quickly, will make interviews become like a formal interrogation. Rapport will evaporate, and informants may discontinue their cooperation. At any time during an interview it is possible to shift back to a friendly conversation. A few minutes of easy going talk interspersed here and there throughout the interview will pay enormous dividends in rapport.

The pilot study afforded the researcher the chance to develop a degree of confidence in the interview process and the ability to proceed in a more relaxed manner.

Two individuals who meet the description of the two groups of physically disabled adults previously described (mildly disabled and severely disabled), as well as one significant other, and one expert in the field of physical disability participated in the pilot study. None of them were subsequently involved in the study.

Additionally, several doctoral students in the Educational Administration Department were asked to assess the interview guides with respect to appropriateness, clarity, and relevance.

Based on the information derived from these activities, modifications to the interview guides were made. No substantive changes resulted but process changes, which led to longer interview guides and more "icebreaker" or introductory kinds of activities.

Trustworthiness

In a qualitative or naturalistic inquiry, it is often more appropriate to refer to the concept of trustworthiness rather than to reliability and validity (Iles, 1984:26-30). Major proponents of this approach are Guba (1981) and Lincoln and Guba (1985). They clarified the matter this way:

> The basic issue in relation to trustworthiness is simple: How can an inquirer persuade his or her audiences (including self) that the findings of an inquiry are worth paying attention to, worth taking account of (Lincoln and Guba, 1985:290)?

Guba 1981a:10-11) previously identified four aspects of research trustworthiness--credibility, transferability, dependability, and confirmability. Credibility has to do with the truth value of an investigation, transferability is concerned with applicability, dependability deals with consistency, and confirmability addresses neutrality (Guba, 1981b:84-90).

Credibility. Credibility is synonymous with internal validity. Since credibility is concerned with the degree of confidence that can be placed in the findings of a given investigation and since social realities are based upon the perceptions of the informants, care needs to be exercised to promote and ensure credibility. Therefore, this research investigation relied upon three different groups of individuals as its data source. Data gathered from these multiple sources were triangulated as an aid to verification.

Additionally, the researcher was engaged in the world of the physically disabled over a prolonged period of time while she collected data, analyzed it, interpreted it, and wrote up the study. As well, the researcher attempted to become familiar with the relevant professional literature as a means of enhancing her interpretative insights. Raw data in the form of cassette tapes and verbatim transcripts of the interviews were maintained for frequent re-examination.

Transferability. Transferability is the counterpart of external validity. The quality and quantity of the data provided is instrumental in determining the applicability of the findings. The researcher endeavoured to provide thick or rich description as recommended by (Bogdan and Biklen, 1982:2). Such a description allows others to make comparisons of similarity and to ultimately make judgments with respect to transferability. They are able to enjoy a vicarious experience and to a degree live the lives of the informants which aids their assessment of the study's value.

Dependability. Dependability in qualitative inquiry is the counterpart of reliability in quantitative investigations. The concepts of consistency and stability are of foremost concern relative to dependability. As previously noted, Allport (1955:598-606) concluded that perceptions, which were the main source of data in this study, "remain relatively constant over time." Additionally, an audit trail was maintained so that the processes of data collection, analysis, and interpretation could be explained. Records such as diary entries, cassette tapes of the interviews, and the verbatim transcripts of the interviews were retained. As well, the juxtaposition of interview data and document data, used particularly to prepare the informant vignettes found in Chapter V, but also to affirm informant dependability, added to the stability of the data.

Confirmability. The operational term in qualitative research is confirmability rather than objectivity as in a quantitative study. The previously noted audit trail can be used to establish the relation between this researcher's interpretation and the actual raw data.

Moreover, the researcher was aware that her values or personal views with respect to the holistic needs of physically disabled adults and their rights as individuals were a potentially biasing factor. To help avoid the intrusion of researcher bias, coding categories and processes were checked by another person, and the direct responses of the informants were used extensively to buttress conclusions.

Ethical Considerations

The Department of Educational Administration Research Ethics Review Committee approved this research on June 26, 1986. Therefore, this study has conformed to the ethical guidelines of the University of Alberta General Faculties Council and the Department of Educational Administration.

Informants in this study signed Consent to Participate forms (Appendix B) indicating that they voluntarily consented to participate, understood the purpose of the study, and have been assured confidentiality. They also agreed to the use of a tape recorder. The physically disabled adults (former P.H.O.E.N.I.X. students) also granted the researcher permission to access their student files.

Additionally, all informants were verbally made aware of the procedures to be followed in the study and considerable care was taken not to mislead them in any way. They were also advised that they were free to withdraw from participation in the study at any time. Also, the purpose of this study was discussed thoroughly with each of them.

Codes were used to assure anonymity as well as confidentiality. These codes were not revealed to anyone. As well, data was either aggregated across informant groups or attributed to an anonymous member of one of the three informant groups. As noted by Punch (1986:45), "there is a strong feeling among fieldworkers that settings and respondents should not be identifiable in print and that they should not suffer harm or embarrassment as a consequence of the research."

Interested informants were advised that they could have access to the results of the study.

Summary

The orientation of the study and the initial conceptualization phase was addressed in this chapter. In so doing, attention was drawn to the purpose of the study, the interpretive paradigm, and the multi-case study scheme. In discussing the nature and sources of data, the nature of perceptual data was reviewed, and the selection criteria described. The nature of the open-ended interview was outlined and attention was given to the concepts utilized to ensure quality control of the data, including the steps taken to ensure that appropriate research ethics were observed.

Chapter IV will describe the selection of informants and will provide insight into the data collection and data analysis process, as well as outlining the interpretive framework used to guide the organization and analysis of data.

CHAPTER IV

Data Collection and Analysis

This chapter provides an elaboration of the methodology employed in this study. First, a description of how the informants were selected is given. Second, the collection of the data by means of interviews is outlined. Third, the interpretive framework, which served to focus the study, is described as well as the organization and analysis of the data.

Selection of Informants

The informants in this study were physically disabled adults who were former P.H.O.E.N.I.X. students, their significant others, and experts in the field of physical disability. The selection criteria was outlined in Chapter III. An overall description of the informants is provided in Chapter V as well as vignettes of the physically disabled adult informants.

Physically Disabled Adults

On January 8, 1985, permission was requested of R. Jamha, former President of the Board of Directors, P.H.O.E.N.I.X. Training and Development Foundation, to access student records to obtain biographical data for use in the identification of potential informants. Permission was granted on January 21, 1985.

Subsequent to this correspondence, the names and addresses of 39 of the 42 former P.H.O.E.N.I.X. graduates were received, and letters were forwarded to them on May 9, 1985, requesting their participation in the study. With each letter, a Consent to Participate form (Appendix B) was enclosed. Thirty-nine letters were sent out. Four letters were returned since the individuals had moved, and no forwarding addresses were available. Of the 35 individuals receiving the letter, 20 individuals agreed to participate in the study.

As well as letters being sent to these individuals, the majority of people receiving letters also met with the researcher in person or a telephone call was initiated to discuss the research. The opportunity to meet with these people was facilitated by the fact that about this time it was becoming obvious that P.H.O.E.N.I.X. was going to be closed, and several meetings were initiated to avert this action. Most of the 20 individuals indicating a willingness to participate in this study, as well as the researcher, attended these meetings. The researcher, who had previously served as a consultant to P.H.O.E.N.I.X., became a member of an ad hoc committee to investigate possible action that could be initiated.

As indicated in the researcher's letter of June 5, 1985 to the 20 individuals who signed the Consent to Participate form, the direction of the study changed following the closing of P.H.O.E.N.I.X. It shifted from an emphasis on P.H.O.E.N.I.X. to dealing with the broader perspective associated with high technology learning experiences and physically disabled adults. Once again, in conjunction with this letter, conversations were held with the potential participants to clarify this new perspective. The 20 individuals indicated enthusiasm and a willingness to participate in the study in its present form. Each of these persons already had some experience as adults in high technology training and were likely to have established some perceptions relevant to the research questions. For this reason, the former P.H.O.E.N.I.X. students constituted a relatively unique and informed pool of informants, which is of particular importance in a study of this kind.

Of the 20 individuals willing to participate in the study, 19 of them were mobility impaired. One individual was legally blind and was excluded from further consideration.

Six individuals were purposefully selected to participate in the study. In order to address the research question concerned with severity of disability, three people deemed to be mildly disabled and three people considered to be more severely disabled were chosen.

The correspondence referred to can be found in Appendix A.

Significant Others

A snowball technique was used to select the significant others in the lives of the physically disabled adult informants. Each physically disabled adult informant was asked to identify one to two individuals who were significant in their lives and who would be willing to participate in the study.

Each physically disabled adult informant named one significant other who would be willing to participate in the study with the exception of one individual who identified two persons who were his parents.

The researcher obtained the telephone numbers of these individuals and called them on the telephone to discuss the study with them and to confirm their willingness to participate in it. Verbal confirmation was obtained from all the persons identified.

This process resulted in seven "significant others" being recruited as informants in this study.

Experts in the Field of Physical Disability

Because of the researcher's previous involvement with the P.H.O.E.N.I.X. project and her postsecondary educational employment, she knew a number of individuals who worked with the physically disabled in a variety of capacities. Such individuals were deemed to be experts in the field of physical disability. Purposeful selection on the basis of their expertise was made from among the individuals that the researcher was acquainted with. Three people from this pool were identified as potential participants. Telephone calls were made and appointments arranged to discuss the study with them in their offices. All three individuals agreed to participate in the study.

The three original informants each suggested other experts to the researcher on her first visit to their offices. Three of these people were again selected on the basis of their expertise, and telephone calls were initiated to them to discuss the study. These people also agreed to participate in the study.

During the course of the interviewing process with the six people identified, nine other experts were suggested to the researcher. The researcher selected six of these people to obtain a cross-section of expertise and subsequently contacted them by telephone to once again discuss the study and elicit their willingness to participate. All six agreed to participate in the study.

Purposeful sampling and the snowball technique proved to be most effective in selecting the 12 expert informants for this study.

Data Collection

Data were primarily obtained through interviews. How these were arranged and conducted are described in this section.

Arrangements for Interviews

All informants in this study were contacted by telephone to schedule a time for the interview. Upon arrival at the interview site, the researcher provided the informants with some information about her personal background and experience and her interest in the problem at hand. This discussion was more extensive with the significant others and the experts in the field of physical disability since, as previously discussed, the researcher was already acquainted to some degree with the physically disabled adult informants and they with her. The aim of this preamble was to develop a rapport with the informants.

Since the physically disabled adult informants had received and signed the Consent to Participate form (Appendix B) in May 1985, this form was again reviewed with them. Particular attention was given to the confidential treatment of the data collected through the use of a coding system and the aggregation of data across informant groups or data attributed to an anonymous member of one of the groups. The other two informant cohorts were given a Consent to Participate form and asked to read and sign it. Each informant was verbally advised that they could withdraw from the study at any time. They were also advised that they need not answer any question they did not wish to answer but, on the other hand, they were not limited in their discussion to the questions asked of them. Additionally, the purpose of the study was fully outlined to all informants.

In the Consent to Participate form (Appendix B) permission was sought to use a tape recorder during the interviews.

> The recording of the interview . . . involves the procedure of obtaining a reproduction of what happened with summarization or interpretation. A transcript of a shorthand report of an interview taken down word for word approximates such a record as does a tape recording or a sound movie. On the other hand, the notes taken by an interviewer summarizing what happened do not constitute a record in this sense. They represent the combined processes of selecting, summarizing, and interpreting information which is referred to as the coding process (Travers, 1969:134).

The use of a tape recorder proved to be most effective in that it allowed the researcher to concentrate fully on the interview and what was being said at the time. The tape recorder was placed in an inconspicuous location and did not appear to make the informants uncomfortable in any way. In fact, with the exception of one informant, they seemed to forget the interview was being recorded. The one informant, a significant other, stated she felt she should talk to it rather than the researcher, but it did not inhibit her as this interview was one of the more lengthy and relaxed ones.

Three or more interviews were conducted sequentially with each physically disabled adult. Each series of interviews were completed with all physically disabled adults before advancing to the next series. The first round of interviews focused on the nature and the purpose of the study and served to establish a trust relationship. Extant data obtained from student files were utilized to establish a climate for interviewing by allowing the informants to talk about themselves. Consequently, the first round of interviews elicited further biographical information and medical history data which were supported by the information on the student files that had been obtained. The second round of interviews focused on the general problem statement and the specific research questions of this study. The final interview series allowed for verification of points made by the informant, and other informants, and to explore particular concerns that surfaced in the previous interviews. Significant others and experts in the field of physical disability were each interviewed once, and the interview focused on the problem statement and supporting research questions.

The interviews with the physically disabled adult informants took place between September 17 and October 16, 1986. Those with the significant other informants were carried out between October 17 and October 23, 1986. Interviews with the expert informants began on October 28 and were completed on November 19, 1986. All interviews were thus completed in two months.

The first interviews with the physically disabled adult informants were relatively short ranging from 30 to 45 minutes. The second interviews focusing on the general problem and the specific research questions conducted with all informants ranged in length from one hour to two and a half hours with the average length being approximately one and a half hours. The final interviews with the physically disabled adult informants ranged from a very brief 10 minute discussion, due to the ailing health of one of the informants, to just over one hour.

The interviews with the informants in this study took place in a variety of settings. The interviews conducted with the physically disabled adult informants all were conducted in their homes, with the exception of one individual who preferred to come to the researcher's office at the University. Two individuals lived in houses and two others lived in apartments. Home for another individual was a group home. Nine residents live in this group home. Six of the residents in this group home are cerebral palsy victims, one is afflicted with a muscular atrophy, and another, with rheumatoid arthritis. Another individual is quadriplegic. This group home is publicly funded and employs six full-time personal care attendants 24 hours a day.

The settings for interviews with the significant others in the lives of the physically disabled adult informants were also diverse. Of the seven interviews conducted, five took place in the homes of the informants. For these five individuals, home meant a house for four of them and a long-term care hospital for another. The latter individual lives on the respiratory unit for patients requiring chronic ventilatory assistance. One informant in this cohort also preferred to come to the researcher's office at the University and another informant was interviewed at her place of employment.

All twelve interviews conducted with experts in the field of physical disability were conducted in their offices during regular office hours. Three interviews took place within postsecondary educational institutions, four in government offices, and five in association offices that serve the physically disabled adult.

All interviews were assigned a code number which was kept confidential by the researcher.

The interview tapes were transcribed verbatim by the researcher using a typewriter. This resulted in 400 single-spaced pages of raw data. While this method was both tedious and arduous, it did afford the researcher an additional opportunity to review and concentrate on the perceptions of the informants. In this way confidentiality could also be assured to a greater extent as the cassette tapes were in the hands of no one but the researcher.

Furthermore, as advocated by Bogdan and Biklen (1982:74-95), a record of activities and decision points in the form of an audit trail were maintained in a field journal. Entries were kept which indicated the date of all interviews and which noted understandings and interpretations gleaned from the interviews. Such entries were made as quickly after the interviews as possible.

The Interviewing Process

Throughout the interviewing process, the researcher endeavoured to develop and maintain an atmosphere of trust. While five open-ended interview guides were developed (Appendix C), they were not strictly adhered to but were used as the term "guide" implies. The preamble to the interviews, wherein purpose and confidentiality were reviewed, was not read but was reviewed in a conversational manner. Time was allowed for the informants to ask questions, and they were encouraged to talk about themselves and their circumstances before the more formal interview began. This preamble was not taped but if any insightful comments were made during this time, the researcher referred back to them by suggesting that what they had said earlier was of interest, and could they now elaborate on that point. Coffee was offered to the researcher in all the office settings and while the researcher does not care for coffee, she always drank a cup in order to make the informant more comfortable. In some home settings tea or coffee and cookies were served, and time was taken to enjoy these and converse with the informant.

The process of interviewing is an exhausting and rigorous one. Depending on the setting and time constrictions, the researcher often left the interview setting drained of energy. She was pleased that she had chosen to tape the interviews so that complete concentration could be afforded the interviewing process and the interviewee. Time proved to be the greatest barrier to an indepth exploration of some of the comments made. This was particularly so for the expert informants who often had heavy schedules throughout their work day. A discreet eye had to be kept on the time in some instances so that the major research questions would be covered. Nonetheless, every effort was made to allow the informants to continue the line of thought they were taking so that nothing of value would be lost. While office settings generally proved to be quiet with the exception of the odd interruption or telephone call, some of the settings used for interviewing the physically disabled adult informants and the significant other informants were neither quiet nor totally private. Such activity was often distracting and mentally exhausting. The physical disabilities of some of the informants, particularly with respect to speech, also demanded the intense concentration of the interviewer.

During the two months the researcher spent interviewing informants, she became totally engrossed in the world she was learning so much about. At times she felt as if her own life were foreign and external to her. She often left an interview grateful to be able-bodied and with an even deeper empathy for those physically disabled than she had previously held. Also a sense of admiration for those less fortunate than herself was often a pervasive feeling as she came to appreciate many of the accomplishments those encased in disabled bodies had achieved. Many interviews were very moving experiences, as well as humbling ones. While the rigor of interviewing may be viewed as a weakness of the interviewing process, it can also be viewed as a strength in that the researcher in essence lives the lives of the informants and can look into their world in an indepth manner. This proved to be particularly so for the researcher with respect to the physically disabled adult informants.

Throughout the interviewing process, the researcher became increasingly adept at the process and was able to more efficiently draw out comments of value and to tactfully turn the informant in another direction if the conversation proved to be unfruitful.

Ongoing refinement of the wording of some questions and supplementary questions aided in eliciting valuable information.

With respect to the interview and more specifically the interview guide, one informant stated, "You sure have thought this subject through and haven't missed out on any thing." Yet another informant said, "I think you have covered the subject in pretty good detail. I think I have stressed all the things that I have thought about, or at least, you have asked them."

Interpretive Framework

This section describes the interpretive framework chosen to guide this investigation. As well, the steps taken to organize and analyze the data are explained. It is critical to the continuity of this study that the concepts being investigated be placed within an interpretive framework. Field and Morse (1985:4) defined a conceptual or interpretive framework as a "theoretical model that the researcher has described to show the relationship among constructs and/or concepts for that particular study." Likewise, Miles and Huberman (1984:28) agreed that a

> conceptual framework explains, either graphically or in narrative form, the main dimensions to be studied--the key factors, or variables--and the presumed relationship among them.

The process of problem structuring, as developed by Dunn (1981), was chosen as the interpretive framework for this study. Problem structuring has as its central focus ensuring the right problem is identified for solution. Often this does not occur because the policy problem is not viewed from a number of perspectives or examined in some depth or detail. A qualitative investigation uses the interviewing process to discern the perceptions of those affected and involved. Dunn (1981:110) suggested these skills appear to be well suited for use in a problem structuring exercise.

The processes of problem structuring are problem sensing, problem conceptualization, and problem specification. These will be discussed later in this chapter.

Nature of Policy Problems

Decision makers often act as though a particular policy problem is an objective condition which can be verified by specific facts. However, this is not necessarily so. "In an important sense policy problems are in the eye of the beholder" (Dunn, 1981:97). Therefore, Dunn (1981:119) defined problem structuring as "the process of generating and testing alternative conceptualizations of a problematic situation." As so aptly put by Wheeler and Janis (1980:37) the "catch is that you cannot know that you are leaving out good alternatives without knowing that those alternatives exist." Even when it may seem that the alternatives are limited, it is possible that other alternatives exist if the phenomenon is looked at in another way.

Dunn (1981:98) defined policy problems as "unrealized values, needs, or opportunities, which, however identified, may be attained through public action." Problem structuring is a significant part of policy analysis which precedes problem solving. Problem structuring is the most crucial process because it leads to problem specification. It is the contention of Dunn (1981:98) that

> policy analysts fail more often because they solve the wrong problem than because they get the wrong solution to the right problem. The fatal error in policy analysis is to solve the wrong formulation of a problem when one should have solved the right one.

In his discussion, Dunn (1981:99–100) outlined four characteristics of policy problems: interdependence, subjectivity, artificiality, and dynamics. Interdependence of policy problems emphasizes that a policy problem in one area or domain affects policy problems in another area. They are not independent but part of a larger web of problems. A broad contextual or holistic approach is required. This is so in all phases of policy analysis. White (1975:30) referred to the work of Snodgrass wherein he depicted by means of a Venn diagram that "solutions need be politically and administratively feasible, socially acceptable, and economically sound." Certainly the question of physically disabled adults and high technology learning experiences is no exception. The subjectivity of policy problems emphasizes that policy problems are elements of problematic situations and not conceptual constructs such as atoms. White (1975:18) recognized this element of subjectivity when he stated the "problem formulation stage is bound to be undefined to a large degree, and gets more defined as we progress, involving subjective judgments." The artificiality of policy problems points to the notion that policy problems come into being only when individuals make judgments about the benefits of altering a particular problematic situation. Therefore, Dunn (1981:99–100) recognized that policy problems are a result of subjective human judgments. Policy problems do not exist apart from those who defined them. The dynamics of policy problems implies that there are as many solutions to a given problem as there are definitions for it. As well, solutions may become obsolete even if the problems they address are not. In problem structuring, it may be necessary to practice problem unsolving by demonstrating that the right solution to the wrong problem has been produced. Therefore, systems of problems cannot be placed in independent subsets without running the risk of producing the right solution to the wrong problem. Recognizing the foregoing characteristics of problem structuring enables one to contemplate unanticipated consequences that derive from policies based on the right solution to the wrong problem.

Phases of Problem Structuring

The process of problem structuring is made up of three distinct but independent phases (Dunn, 1981:107). These are problem sensing, problem conceptualization, and problem specification. It is believed this study has addressed all three phases since it has aided in sensing the problem, conceptualizing the problem, and in then specifying the problem. These three phases produce information about problematic situations, substantive problems, and formal problems. This process of problem structuring is outlined in Figure 4.1.

While problem structuring may begin with any of these phases, a prerequisite is the sensing of a problematic situation. This was the focus of the data collection and data analysis twofold framework for this study and where the perceptions of the physically disabled adults, their significant others, and experts in the field with respect to high technology learning experiences were vital. The study began with the initial problem sensing phase since it was assumed there was a "felt existence" of a problematic situation with respect to high technology learning experiences and physically disabled adults and progressed to the final problem specification phase to define the formal problem. In order to move from a problematic situation to a substantive problem, the analyst defines the problem in basic and general terms such as the basic field from which the problem derives. Once the problem is defined as, for example, a political one, then the problem will be treated in terms of power distribution and group/elite influence. As suggested

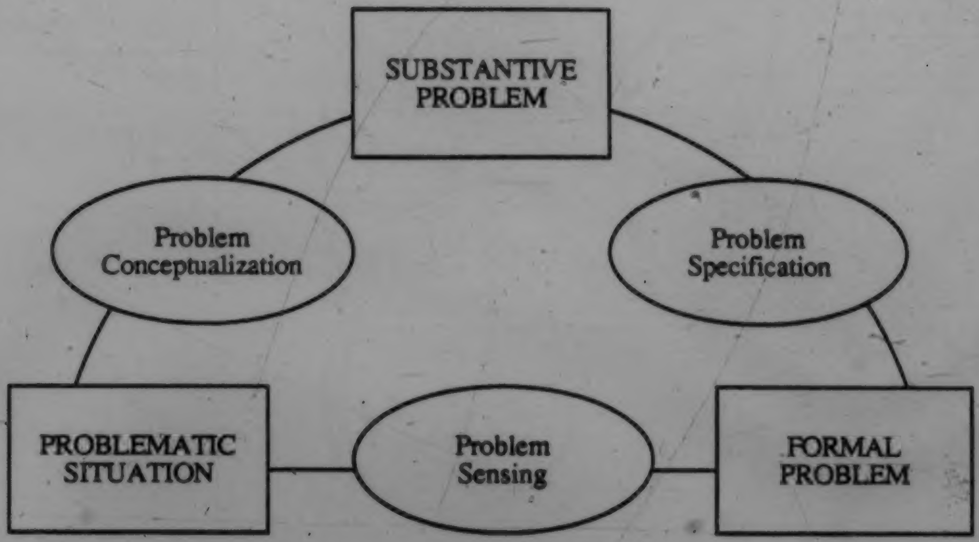
> The choice of a conceptual framework is often similar to the choice of a worldview, ideology, or popular myth and indicates a profound commitment to a particular view of reality (Dunn, 1981:108).

With respect to organizational theory, Astley and Van de Ven (1983:245) suggested that a

> juxtaposition of different schools of thought brings into focus the contrasting worldviews that underlie the major debates that characterize contemporary organization theory.

Thus alternative perspectives are highlighted.

When the problem has been conceptualized, then a formal problem may be created. Problem specification is the vehicle utilized to move from a substantive to a formal problem. Difficulties can occur at this point. "A critical issue in policy analysis is how well problematic situations, substantive problems, and formal problems correspond


SUBSTANTIVE PROBLEM
Problem Conceptualization
Problem Specification
PROBLEMATIC SITUATION
Problem Sensing
FORMAL PROBLEM

(Adapted from: Dunn 1981:107)

Figure 4.1

The Process of Problem Structuring

to one another" (Dunn, 1981:134). This can lead to wrong rather than right substantive or formal representation of a problem. The different phases of problem structuring require different skills--philosophical, conceptual, and technical. "The use of these different skills is related to different meanings of "rationality" in policy analysis" (Dunn, 1981:134). Rationality involves more than the use of technical procedures to determine a formal representation of a problem. It also requires self–conscious and critical choices derived from worldviews, ideologies, and myths to arrive at a conceptual representation of a problem.

This investigation has presented alternative perspectives with which to structure or identify the problem of physically disabled adults and high technology learning experiences.

Application in Present Study

It is suggested that this study has served the problem structuring phase of policy analysis with regard to physically disabled adults and high technology learning experiences. As well, one of the expected outcomes of this study is that it will assist the problem solving phase of policy analysis. More specifically, this study is devoted to structuring the problem as perceived by physically disabled adults, their significant others, and experts in this field; that is, the problem is structured by analyzing the perceptions of these three groups.

Additionally, it is argued that without the perceptions of physically disabled adults, their significant others, and experts in the field of physical disability, with respect to high technology learning experiences, the wrong policy problem will be identified. It is essential that policy problems be questioned and viewed from many perspectives. They must not be taken for granted. It is contended by Conway (1984:11) that participation in decision–making within the educational and management realm has received impetus in the past decade due to the "surge of productivity in Japan" as a result of worker involvement and input into the decision-making process. Once again, this provides justification for not leaving the perceptions of physically disabled adults, their significant others, and experts in the field out of the problem structuring process. It is conceivable that physically disabled adults may view high technology learning experiences from a social or psychological context whereas government agencies, for example, may view them from only an economic context.

Dunn (1981:105) contended that most policy problems are ill-structured since public policies derive from interrelated decisions which are made and influenced by many stakeholders over lengthy periods of time. Consensus is unusual. It is suggested that ill-structured problems necessitate an analyst to actively engage in defining the nature of the problem. In doing so, an analyst must be creative and insightful. Therefore, the larger part of policy analysis is devoted to problem structuring and only a small portion to problem solving. Dunn (1981:107) emphasized that "successful problem structuring requires that analysts obtain creative solutions for ambiguous and ill-defined problems." It is argued that the perceptions of the informants of this study relative to high technology learning experiences will enhance the ability of policymakers to arrive at creative and meaningful solutions in this regard. Dunn (1981:107) pointed out that

> Problem structuring is creative to the extent that one or more of the following conditions are satisfied: (1) the product of analysis is sufficiently novel that most people could not or would not have arrived at the same solution; (2) the process of analysis is sufficiently unconventional that it involves the modification or rejection of previously accepted ideas; (3) the process of analysis requires sufficiently high motivation and persistence that analysis takes place with high intensity or over a long period of time; (4) the product of analysis is regarded as valuable by analysts, policy makers, and other stakeholders, since it provides an appropriate solution for the problem; and (5) the problem as initially posed is so ambiguous, vague and ill defined that part of the task is to formulate the problem itself.

It is suggested that conditions one, two, and four are satisfied by this study and to some extent conditions three and five.

Data collection or the first phase of this study was elaborated in Chapter I. The "felt existence" of a lack of policy direction with respect to the high technology learning approach and physically disabled adults was defined. As well, the justification for the study was presented. The problem was conceptualized through the use of the qualitative approach, an interpretive paradigm, and a multi-case study scheme as outlined in Chapter III. Bringing the perceptions of the three informant cohorts in this study to bear on the problem aided in generating alternatives and eventually specifying the problem.

The progression of the data collection phase of the problem structuring process initially developed in this study is illustrated in Figure 4.2.

The data analysis phase of problem structuring, as it applies to this study, begins by examining the alternatives derived in the first phase of problem structuring. Through this process, it was sensed that physically disabled adults had unfulfilled expectations and unmet learning needs relative to high technology learning experiences. The problem, in turn, was conceptualized relative to the personal conditions or biographical features of the informants. Problem specification entailed a formalization of the problem. While Dunn (1981:109) suggested problem specification usually involves a "mathematical representation of the substantive problem," he conceded that

> most policy-analytic methods for specifying problems in formal mathematical terms tend to be inappropriate for ill-structured problems, where the main task is not to obtain the correct mathematical solution but to define the nature of the problem itself.

The conclusions of the study were ultimately articulated through the foregoing problem structuring guidelines.

The data analysis phase of problem structuring, as it relates to this study, is illustrated in Figure 4.3.

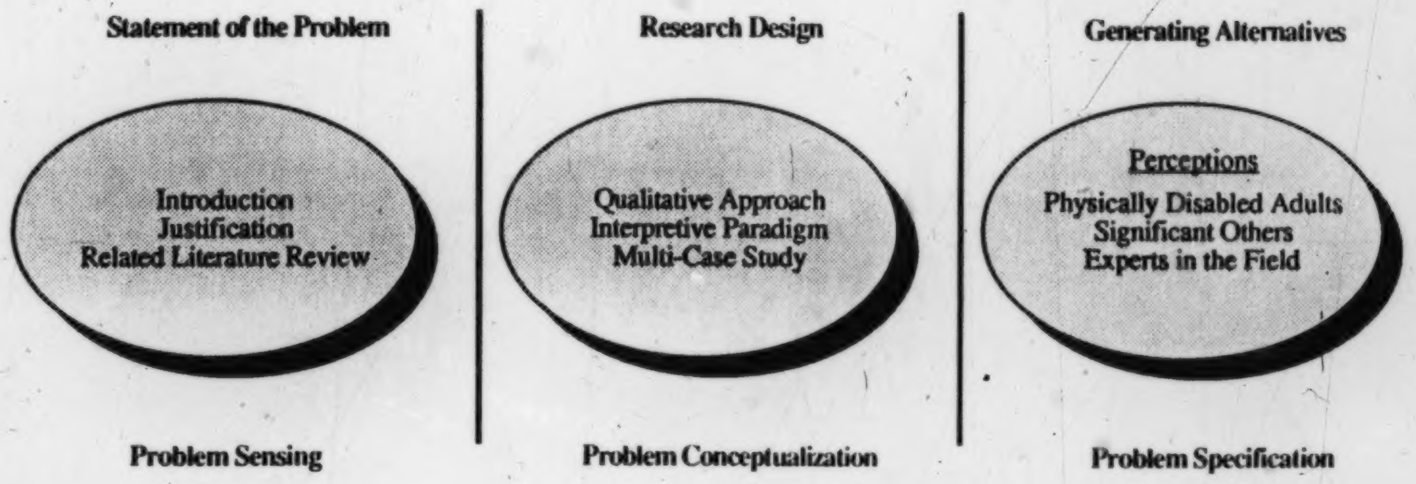

Statement of the Problem
Research Design
Generating Alternatives
Introduction
Justification
Related Literature Review
Qualitative Approach
Interpretive Paradigm
Multi-Case Study
Perceptions
Physically Disabled Adults
Significant Others
Experts in the Field
Problem Sensing
Problem Conceptualization
Problem Specification

Figure 4.2

Problem Structuring as it Relates to Data Collection in the Current Study

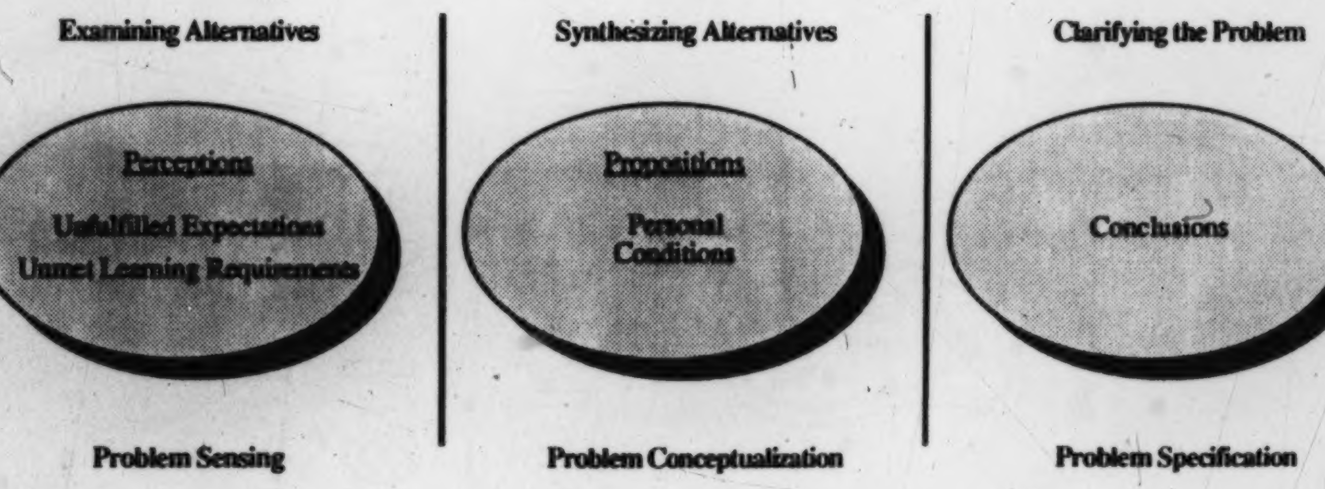

Examining Alternatives
Perceptions
Unfulfilled Expectations
Unmet Learning Requirements
Problem Sensing
Synthesizing Alternatives
Propositions
Personal Conditions
Problem Conceptualization
Clarifying the Problem
Conclusions
Problem Specification

Figure 4.3

Problem Structuring as it Relates to Data Analysis in the Current Study

Organization and Analysis of Data

This section outlines the procedures followed to organize the raw data which in turn led to the findings of the investigation and ultimately to propositions relevant to high technology learning experiences and physically disabled adults. The use of the documentary data is also discussed.

The data collected in a qualitative study appears "in words rather than numbers" as stated by Miles and Huberman (1984:21). The data collected from the interviewing process in this study resulted in some 400 single-spaced, typed pages of raw data. The term "thick description" can be applied to such a volume of data. Bogdan and Biklen (1982:145) proposed that analyzing such data

> involves working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others.

Both Miles and Huberman (1984:21) and Bogdan and Biklen (1982:56) recognized that data analysis occurs on a continuous basis throughout the life of a qualitative investigation. Qualitative analysis is not segmented into phases or stages but is ongoing and occurs during data collection and after data collection until, as suggested by Miles and Huberman (1984:21), "a final report is complete." Initially the problem statement and research questions guided the researcher in making sense of the data, but gradually emerging themes also served as categorizers.

The organization of the data followed in a very broad sense the grounded theory approach identified by Glaser and Strauss (1967) and adopted by Turner (1981:230-242). In this approach 1) categories are developed to fit the data, 2) the categories are then saturated until it is felt that no further responses will provide new understandings, 3) anabstract definition of the category is developed, 4) the definition is used to identify further responses, 5) additional categories are developed derived from the initial categories, 6) relationships are noted between categories and propositions formed about such links, 7) the conditions under which the links hold are noted, 8) propositions developed are linked to those in the related literature, and lastly, 9) checks are made to investigate if the propositions hold true in other settings. While these stages were approximated in this study, they were not necessarily followed in the same order. Moreover, time restrictions did not allow for progression to the ninth or final stage.

Following each interview a verbatim transcript was prepared. Each transcript was assigned a code number, and each page of the transcript was numbered. Each transcript was then read through and comments deemed insightful highlighted with a marker.

Upon completion of all the interviews, the transcripts were then read through again and often brief notations and cross-references were made. Thereafter, the response of the informant on each page was assigned a number. In this way each response could be identified by the interview code, the page number, and finally the response number. A code for a particular response would be, for example, BGB-2-5.

The researcher once again read through each transcript and defined categories to fit the informant responses. This was first done for the data derived from the physically disabled adult informants, then the significant other informants, and lastly the expert informants. The defined categories were then written at the top of 5 x 8 colour-coded index cards. The codes developed for the responses that fit the category were then placed on that card. Each card was numbered, and an index was prepared for each of the three groups of informants. The responses were not cut and placed in envelopes or attached to cards, but the transcript was kept intact. While this was somewhat cumbersome, it was felt to be preferable since the context of the responses were maintained, which enhanced the trustworthiness of the analysis and findings.

The categories were then saturated until it was felt that no new meaning could be derived from the data. While, as previously stated, the problem statement and research questions initially guided the development of categories, additional themes evolved into categories. When this process exhausted the data, then the categories were cross-referenced by notations on the cards to denote relationships between categories. Propositions linking the data were thereby developed and recorded in a notebook. Notes were made as to the conditions relative to the relationships and how the propositions related to those derived from the related literature for comparison and contrast purposes.

The steps taken can be traced back to the raw data to provide an audit trail. This audit trail verifies the dependability of the findings.

Document sources played a very limited role in this investigation. The school documents were read to verify and expand upon the medical and biographical data received in the first round of interviews with the physically disabled adult informants. This juxtaposition of data reinforced the dependability of the data. All school documents were maintained by the researcher, and coding was used to protect the confidential nature of the material.

Presentation of Data

In order to facilitate data presentation, categories were developed in Chapter III from the research questions defined in Chapter I. Emerging categories also surfaced during the analysis of the raw data derived from the interviews with the informants of this study. The data were organized in an analytical style. Werner and Schoepfle (1987b:291-292) defined such an approach as a taxonomic approach and as a procedure which dismantles things. They (Werner and Schoepfle, 1987b:302) described the analytic style as one that "describes all parts of a cultural knowledge system without telling how the whole system works." Each category was addressed as a separate part of the whole. Additionally, the data derived from each of the three groups of cohorts in the study were presented in a separate chapter.

The data were presented in original form as much as possible. As stated by Bogdan and Biklen (1982:177)

> A good qualitative paper is well-documented with description taken from the data to illustrate and substantiate the assertions made. There are no formal conventions used to establish truth in a qualitative research paper. Your task is to convince the reader of the plausibility of your presentation. Quoting your subjects and presenting short sections from the fieldnotes and other data helps convince the reader; it also helps your reader get closer to the people you have studied. The quotations not only tell what they said, but how they said it and what they are like.

The extensive use of quotations characterizes the presentation of the data in this investigation.

Summary

This chapter began by outlining the procedure used to select the informants of this study. The data collection process was then outlined followed by an elaboration of the interviewing process. As well, the interpretive framework used to guide data organization was presented, followed by an explanation of the way the data were analyzed.

The next chapter examines the context of the study as it relates to physically disabled adults in Alberta as they pursue high technology learning experiences. Vignettes of the physically disabled adult informants are prepared. The vignettes will supply insights into the backgrounds of these informants and ultimately their perceptions relative to the research questions.

CHAPTER V

Context

This chapter begins with a brief description of the programs and services offered to the physically disabled adult in Alberta, along with a preliminary identification of current conditions and trends. The chapter concludes with vignettes of the six physically disabled adult informants.

The Alberta Scene

From discussion with the informants in this study and perusal of relevant documents, the following scenario appears to exist in this province with respect to the holistic needs of physically disabled adults.

Physically disabled adult Albertans are served by a number of government departments and from 25 to 30 associations designed to help meet their needs and provide a voice for them. Many of these associations offer counselling, support, and resources to individuals with particular afflictions as, for example, multiple sclerosis or for individuals who are paraplegic. Many of these associations are Canadian in scope with Alberta divisions. Some associations are private and offer consultation services such as occupational therapy assessment, employment services, or paramedical visitations in order to allow individuals to live independently and outside of institutions. Several associations are centered around sports activities. Provincial government programs provide for a wide variety of needs such as aids to daily living, an assured income for the severely handicapped, transportation, and housing. For example, a driver training program is offered through the Glenrose Rehabilitation Hospital.

Moreover, The City of Edmonton and Vicinity White Pages (1987:37-40) contains a Handicapped Accessibility Guide, as provided by the Alberta Committee of Consumer Groups of Disabled Persons, which lists those buildings that are accessible to the disabled. The index provided includes associations, banks, business office buildings, churches, educational institutions, extended care hospitals, government buildings, hospitals, hotels and motels, housing, information services, libraries, medical and dental buildings, medical suppliers, recreation facilities, restaurants, senior citizens facilities, shopping centers, and transportation facilities. As well, A Guide to Services For Disabled Albertans is also prepared annually by the Alberta Government.

In order to provide a better understanding of the scope of programs and services available to physically disabled adults in Alberta, Table 5.1, outlining major services, has been prepared using the Guide to Services for Disabled Albertans (1986) as a primary source.

With respect to education and/or training, the provincial government provides funding for three groups of physically disabled adults. Career Development and Employment provides a training component for those disabled persons entering the competitive employment market. In order to qualify for such training, an individual must suffer permanent disability with functional loss relative to their potential employment. The applicant must have documentation from a medical doctor, be at least 18 years of age, be an Alberta resident, and have gone through vocational counselling to determine if their goals are appropriate and if they will benefit from the program they wish to enter. This department (Career Development and Employment) provides funding on a 50-50 cost-share basis with the federal government through the Vocational Rehabilitation of Disabled Persons (VRDP) program for counselling, equipment for the work site and/or training site, work site modification on a cost-share basis with the employer, and schooling at a postsecondary educational institution or direct training on the job.

Table 5.1

Services to Physically Disabled Adults in Alberta

Government Programs

Advanced Education

Education and Training Programs--Courses
Financial Assistance for Disabled Students
Support Services Available at Postsecondary Institutions

Culture and Multiculturalism

Alberta Library Services to the Handicapped

Hospitals and Medical Care

Hospital/Nursing Home Services

Municipal Affairs

Home Adaptation Program

Labour

Special Employment Programs for the Disabled

Career Development and Employment

The Vocational Rehabilitation of Disabled Persons Program

Social Services

Assured Income for the Severely Handicapped Vocational Rehabilitation Services

Community and Occupational Health

Alberta Aids to Daily Living

Workers' Compensation Board

Workers' Compensation Board--Rehabilitation Centre Vocational Rehabilitation Department

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Associations

Alberta Rehabilitation Council for the Disabled	• Edmonton • Calgary

Cerebral Palsy Association in Alberta	• Edmonton • Calgary
Calgary Foundation for Poliomyelitis and Rehabilitation	
Canadian Paraplegic Association	• Edmonton • Calgary
Multiple Sclerosis Society of Canada	• Athabasca • Barrhead • Calgary • Camrose • Crowsnest • Red Deer • Edmonton • Lethbridge • Lloydminster • Medicine Hat • North Peace • South Peace • Westlock
Muscular Dystrophy Association of Canada	• Edmonton • Calgary
Arthritis Association of Edmonton	
Neurofibromatosis Association of Alberta	• Edmonton
Alberta Committee of Consumer Groups of Disabled Persons	• Edmonton
Calgary Action Group of the Physically Disabled	
Disabled on the Move	• Lethbridge
Regional Action Group of Edmonton	
Medicine Hat Wheelchair Action Group	
Red Deer Action Group of the Physically Disabled	
Rehabilitation Society of Calgary	
Rehabilitation Society of Southwestern Alberta	• Lethbridge
Medicine Hat Rehabilitation Workshop	
Northern Alberta Spina Bifida Association	• Edmonton
Spina Bifida Association of Southern Alberta	• Calgary

Social Services funds 36 vocational training agencies on a cost-share basis with the federal government. The individuals they provide for cannot generally as readily enter the competitive market as those served by Career Development and Employment. Those individuals entering vocational training programs through Social Services do so on the basis of barriers to employment or training and are individuals who are not able to access generic educational systems. An example of the uniqueness of some of the programs offered by Social Services is the community enrichment program for adults with physical disability offered at Grant MacEwan Community College. This program was originally developed by the Alberta Rehabilitation Council for the Disabled. The aim of this program is to assist physically disabled adults to achieve a greater degree of independence. Assessment and training in independent living takes place in a two-bedroom apartment at Sir Douglas Bader Towers, Edmonton, which is an integrated apartment tower that includes adapted housing for the physically disabled.

A third consumer group of physically disabled adults are those individuals who were injured on the job. They are served by Workers' Health, Safety and Compensation and are assessed by the Workers' Compensation Board and if retraining is deemed necessary in order for the worker to return to the work force, this will be provided through their Vocational Rehabilitation Department. This program is funded 95 percent by the employer and 5 percent by the provincial government.

Within the provincial government, an Inter-Departmental Vocational Rehabilitation Committee exists. The departments that are a part of this committee are Social Services, Community and Occupational Health, Hospitals and Medical Care, Career Development and Employment, Education, Advanced Education, and the Alberta Alcohol and Drug Abuse Commission (AADAC). This committee meets once a month to review the programs offered within this arena in the province. It provides an opportunity to discuss and dialogue on issues. The committee does not deal directly with any associations, but individual departments represented thereon do. Despite the existence of such a liaison mechanism, it appears as if the departments often work in isolation, and many of their efforts are fragmented.

It also appears that the associations are not very sophisticated in their operation and do not work in a unified way. They often differ in their interpretation of issues and the means for their resolution. Nevertheless, these associations are important vehicles for encouraging the physically disabled adult community in Alberta to "come out of the closet." Disabled persons are increasingly demanding the opportunity to live independent lives. Such independence requires greater learning and a marketable skill.

Alberta society is becoming more aware of this population and their aspirations. Aside from being fund raising activities, the Terry Fox run and the Man in Motion tour of Rick Hansen are public awareness events that promote an understanding of the aspirations of the physically disabled. As a result of such activities, the likelihood that the physically disabled can make a meaningful contribution to society is brought to the public's attention. For example, Rick Hansen's visit to Alberta early in 1987 culminated in Premier Don Getty announcing that he would establish a Premier's Council on the Status of Disabled Persons. The Council is expected to be a decision making body and provide for broad representation of the disabled community.

At the same time, threatened and actual cutbacks by the government is alarming the physically disabled community. Proposals for cost-sharing between the government and the recipients of services or benefits implies a means test which could ultimately be a threat to programs like Aids to Daily Living. For many physically disabled adults, their daily living needs must be adequately met before learning needs can be effectively addressed.

However, individuals on Assured Income for the Severely Disabled (AISH) are likely to be protected, but those individuals trying to be independent may not be. If this occurs, the incentive to seek independence will be seriously eroded if not destroyed. Moreover, cutbacks of any sort will place a severe strain on the volunteer dollars collected through the associations as individuals turn to the associations to meet their needs. It is also feared that the current recession will halt progress toward community living rather than institutional care. On the basis of current realities and future probabilities such as these, it seems reasonable to conclude that economic conditions in Alberta now threaten the physical disabled adult community.

The Informants

The physically disabled adult informants ranged in age from 24 to 52. Five of this cohort were male and one was female. One informant is a multiple sclerosis victim, one a muscular atrophy (Rugleberg Wehlander Syndrome) victim, and one a cerebral palsy victim. Another informant suffers from a degenerative spinal problem as a result of an industrial accident. Two informants suffered spinal cord transection because of car accidents. One is a paraplegic, and the other, an incomplete quadriplegic since limited use of the right hand has been maintained.

The significant others in the lives of the physically disabled adult informants, and as identified by them, consisted of two parents, one spouse, one sibling, one friend, one mentor, and one personal care attendant, for a total of seven individuals. Five of the informants in this cohort were able-bodied, and two were physically disabled. The two disabled informants were the friend and the mentor.

Of the 12 expert informants, four were government employees, three were postsecondary educational institute employees, and five were employees of associations that provide for the needs of the physically disabled. Five individuals in this cohort were physically disabled, one from a postsecondary educational institute and four from the associations. All four government employees were able-bodied.

Therefore, physically disabled adults were informants in all three cohorts. Thirteen physically disabled adults were consequently interviewed. Six were drawn from the initial cohort of physically disabled adults, two from the significant other cohort, and five from the expert cohort. As a result, a cross section of perceptions from actual personal experience with physical disability was accessed.

Physically Disabled Adult Informant Vignettes

The following vignettes provide a brief profile of the six physically disabled adult informants in this study. These vignettes yield some insight into the perspectives from which these individuals have developed their perceptions with respect to high technology learning experiences and its influence upon their lives.

Informant One

This informant is a 27 year old single male. He is a very personable young man who presents a neat appearance. He lives alone in a rented high-rise apartment. Although confined to a wheelchair, he is able to drive his own car to and from work and move about independently. For the last year and a half, he has had full-time employment in the computer graphics unit of a large company, which is his first employment other than odd jobs while in high school. The computerized drafting training program that this informant attended at P.H.O.E.N.I.X. provided him with the knowledge and skills that enables him to hold this position. While not particularly active socially, he does get to movies and to shop with family and friends. He has a very loving and supportive family with whom he has an excellent relationship.

A car accident at the age of 19 resulted in this young man being an incomplete quadriplegic with a C6 (cervical) spinal cord transection and a C5 fracture. Therefore, he has limited use of his right hand but no use of his left hand and can wiggle his toes. Although he has tactile sensations, he is unable to distinguish between hot and cold. Particularly when tired, he suffers from some spasticity. He is unable to weight bear or, in other words, support his own weight. He is almost always in pain in the legs, which is attributable to the tendons tightening up. Nonetheless, he uses a small weight set to improve his strength and dexterity.

This young man is making a concerted effort to live an independent life-style and not be a burden to family or society. He seems to be on the way to coming to terms with his disability.

Informant Two

Informant Two is a 52 year old married man. This man could be described as a pleasant, cooperative person who is persistent and very goal oriented. He and his wife live in their own home. While at P.H.O.E.N.I.X., he attended the electronics program and is currently attending the first year electronics apprenticeship program at N.A.I.T. Before becoming disabled, he was a cabinet maker and installer and also worked in the aircraft industry. He feels that his life is very unsettled at the moment but plans to continue his education and hopes to find work in the electronics field if only on a part-time basis. Since his wife is not a well person either, they do not enjoy many social activities. Nevertheless, he enjoys reading and watching hockey games on television.

This gentleman suffers from a degenerative spinal problem as a result of an industrial accident. He experiences moderate pain 95 percent of the time, which radiates down through his legs. He has undergone four spinal operations. The reflex nerves in his feet do not function. Nothing further can be done surgically for this informant's condition. He stands 90 percent of the time when he is at school and either kneels on a chair or lies down when relaxing at home since sitting is not possible. He is able to walk but is limited with respect to how quickly and how far he can walk.

This informant feels that he is just beginning to come to terms with his disability. He senses that his stamina is not what it used to be. He maintains a positive point of view and, for this reason, is continuing with his studies at N.A.I.T.

Informant Three

Informant Three is a 29 year old male who is single. He is a pleasant and capable young man who maintains his own apartment in a three-storey building. He is employed as a junior accountant with a wholesale company. Prior to the onset of his disability, he did farm work having grown up on a farm and worked as a gravel crusher for a construction company. Since his disability, he also worked as an order desk clerk with a tile company for a period of three years before being laid off due to the deteriorating economy and resultant lack of work. This young man is now attending evening classes at N.A.I.T. in the accelerated accounting program. While he finds these classes tiring in conjunction with full-time employment, he is enjoying it. He has little time or energy for social activities because of this. In spite of some restrictions in his activities, this informant feels that his life is quite good since he has a steady job and is still able to drive his car and take care of himself. He has a strong desire to be self-sufficient and independent. This informant is very close to an extended family including a niece and two nephews.

At the age of 22, this gentleman was diagnosed as having multiple sclerosis. While multiple sclerosis is generally a progressive affliction, at the moment, it is stable for this informant. The disease affects his coordination; most particularly, both legs are affected. He has a tremor of the head when under stress. He also experiences some difficulty with fine dexterity in his hands. A cane is utilized when walking any distance. On occasion his speech is affected, and he experiences a lot of nervousness. As well, he cannot lift any heavy objects. He experiences little pain other than from some arthritis in his ankles.

While it took this informant a long time to get used to not being able to do the things he used to be able to do, he feels he has now pretty much come to terms with his condition. He had planned to take over his parent's farm since he is the only son in his family. However, once he realized this was no longer possible, he shifted gears and has made a good adjustment. He is now concerned with keeping up to date and perfecting his knowledge and abilities in the field of accounting.

Informant Four

This informant is a 34 year old single male. He is a very congenial and pleasant young man who received his schooling through correspondence and has Grade 11. He lives in a group home where attendant care is provided 24 hours a day. Prior to his condition deteriorating to its present state, he did artwork for a commercial printing firm. In the past, he has been a very successful cartoonist having had some of his work published. He now works as a freelance artist. To date, his coordination has not worsened, but he tires more quickly. He went to P.H.O.E.N.I.X. in order to master computerized drafting and to learn to use a mouth stick. The group home is currently purchasing a computer, and this should help this gentleman with his artwork a great deal. This informant also sits on a number of boards for volunteer associations. He has quite a few friends and enjoys a close relationship with his family. While he enjoys going out to parties and movies and shopping, he tires very quickly. He relaxes by listening to music, reading, watching videos, and playing chess and cards.

Since birth, this informant has been afflicted with Rugleberg Wehlander Syndrome. This is a progressive disease which affects the motor neurons resulting in muscular atrophy. This informant has no use of his legs and requires attendant care to meet his daily living needs. Because he has total sensation, he suffers considerable pain in his legs. His muscles are always sore. He is confined to an electric wheelchair.

As a result of this affliction being congenital in nature, this informant has fully accepted the disease. However, he does experience some difficulty adjusting to the deterioration of his condition, which is presently occurring relatively rapidly. He becomes frustrated at times when he cannot do things he could previously do. However, he is determined to remain active and involved and maintain a positive outlook.

Informant Five

Informant Five is a 24 year old recently married female. She is a very pleasant, capable young lady who has a very bubbly personality and exudes enthusiasm in all that she does. This young lady recently married a very personable, able-bodied young man. They have purchased their own home to which they had a wheelchair ramp attached. She attended P.H.O.E.N.I.X. in order to master word processing, and she is employed full-time with a large computer-oriented company as a personnel secretary. She and her husband are very active socially, and she is very fit and athletic. In the past she was involved in competitive athletics with the Paralympics Canadian Team. She participates in downhill skiing which is called sit skiing since she sits in a toboggan like cart. She also swims. Times at home are spent reading, watching television, and doing petit point. This informant is very independent and drives her own car.

A car accident at the age of 14 left this informant a paraplegic. She has a T5 (thoracic) spinal cord injury. She does not have much lower body strength and does not have the balance to lean forward and pick up something with both hands and lean back. When she reaches for something, one hand is always on her wheelchair.

This informant has adjusted completely to her disability. She never thinks about it and is very satisfied with her life as it is. She never felt she would not marry and lead a full life in every way, and consequently she does. She and her husband plan to have a family.

Informant Six

This informant is a 26 year old single male. He is a very enthusiastic, confident, and athletic young man. This man went to a special school until the age of 11 and from then on attended a mainstream school. He lives at home with his parents and is very involved in disabled sports both as a competitor and as an administrator. Sports has been his most valued outlet. He plays wheelchair basketball and swims competitively internationally with both disabled and able-bodied athletes and, furthermore, has worked as a systems analyst assistant and as a clerk with the provincial government. He quit his last job to attend an international sporting event. This informant took the microcomputer programming course at P.H.O.E.N.I.X. and is planning to go back to school, most probably in the social work area.

This young man has been afflicted with mild cerebral palsy since birth. He has spastic diapelegic cerebral palsy which means that his most severe disability is from the waist down, but he also has some disability throughout his entire body. His coordination is somewhat reduced, and as a result, he is a slow writer. Two canes are used by this man for walking but if he has a great distance to go, he will use a wheelchair. He does not suffer any pain because of his disability.

Since his disability has always been with him, this informant is totally adjusted to his condition and views it as merely a characteristic of himself. He feels that disability can be an advantage in that your strengths and weaknesses are up front with people. Additionally, he values meeting a whole different range of people because of his physical disability. He suggests that an individual who has been disabled from birth has the same opportunity to continue to improve as does an able-bodied person.

Summary

This chapter has provided an insight into the condition of the physically disabled adult Albertan in a pervasive, holistic sense. It has also presented a brief biography of the physically disabled adult informants so that their life position can be related to their perceptions.

The data findings are presented in the next three chapters.

CHAPTER VI

Data Presentation—Physically Disabled Adult Informants

The purpose of this chapter is to present the data derived from the six physically disabled adult informants in this study. Three of these informants are severely disabled, and three are mildly disabled. Since these informants are physically disabled and have participated in a high technology learning experience, they are able to provide first-hand perceptions of the needs and benefits associated with a high technology learning experience for physically disabled adults. As outlined in Chapter IV, these data are presented in an analytic fashion. Therefore, the data are organized in terms of the eight specific categories listed in Chapter III to support the purpose of this study, as well as two categories which emerged during the investigation. These two categories concern the role of sports activities and the influence of attitudes. The data are arranged in a systematic fashion to indicate what is and what ought to be, the issues to consider when constructing a learning experience, the proposal, and lastly, the benefits of such a learning experience, thereby providing rationale for the proposal. Furthermore, the data are presented in original form through the extensive use of quotations to allow the data to speak for themselves. Propositional statements are used to summarize the perceptions of the informants and thereby conceptualize the problem.

Category 1. The Existence And Adequacy Of High Technology Learning Experiences For Physically Disabled Adults.

Four concerns were raised to probe the existence and adequacy of high technology learning experiences for physically disabled adults. The first of these concerns dealt with the adequacy of high technology learning experiences for physically disabled adults. One informant was concerned about those severely disabled not being accepted immediately in mainstream programs. He mused, "It might just take a little time." The remaining informants felt:

> They are improving, yes, very much.
>
> Well, as far as accessibility, I think it is pretty good. I have never attended university or N.A.I.T. I think the actual courses are designed for able-bodied people, and a lot of physically disabled people are scared to go to these facilities because they know they will be just too taxing and tiring.
>
> I think they are getting the actual structural part of the school better with ramps and washroom facilities, but the actual curriculum is still directed toward the healthy.
>
> It comes down to how fast they put you through. You might not be able to keep up with it. Physically disabled people have gone through them and probably are going through them, but I guess nobody knows how hard it is for them to go through them.
>
> Actually I don't think a place like N.A.I.T. or the U of A or Grant MacEwan can really gear down to what the physically disabled need. What P.H.O.E.N.I.X. had was about what physically, really physically disabled people need. I really can't envision them becoming much more flexible than they already are. For example, I can't write as fast as a normal person and still be legible, so I have to write at a slower pace, and I tire out quicker. At N.A.I.T. the other day, we only had an hour for an exam which is fine for a normal person. Me, I couldn't complete the exam in an hour, and I don't think that is really fair. Also there are certain disadvantages that I have found out since attending N.A.I.T. I am taking classes in the Tower Building on the seventh floor, and it has two elevators that are about as fast as turtles. One elevator doesn't work half the time. It is difficult for me to take the stairs. Also there is not enough parking for disabled people. I don't consider myself very severely disabled, and I am not in a wheelchair, but I am still having a tough time at N.A.I.T. Even though N.A.I.T., the university, and Grant MacEwan are all accessible to disabled students, it is still pretty difficult.

The informants were of the opinion that considerable progress has been made in improving accessibility to mainstream programs and services. They felt that those individuals physically able to attend mainstream programs were being accommodated, but improvement was still required in all areas particularly with respect to curriculum and methods of instruction.

Do those who are severely disabled require specialized programs and services? One person suggested, "There is a need for that type of program for the more severely disabled," while another stated, "There are those that need them." Another person emphasized:

> For the type of people I met at P.H.O.E.N.I.X., there is a need for a lot of assistance, special assistance, which you wouldn't get at a normal postsecondary school.

Thinking of himself, one severely disabled informant noted:

> I can only work at a certain level. Like I could never go to a school or work full-time because I would just get too exhausted. I would have to have a part-time specialized situation where a lot of it could be done at home. Especially in our climate, it is exhausting to get ready to go out into the elements and ride a DATS bus for say an hour or more there and back. All that I find very exhausting--putting on heavy coats and sweaters and getting my chair stuck in the snow.

Speaking from experience at N.A.I.T. a mildly disabled informant stated:

> There are a lot of people out there who can't function in a normal setting. That is one experience that I learned at N.A.I.T. I am actually fairly well off compared to a lot of people.

Are specialized programs and services adequate for the severely disabled? The informants replied:

> They aren't there for those who need them.
>
> There aren't any that I know of.
>
> P.H.O.E.N.I.X. is the only one I ever knew of.
>
> No, there is probably nothing out there.
>
> A lot of people who push the buttons in society do not necessarily want to spend the money for a few disabled people. They are definitely inadequate, yes, yes.
>
> No, there are no adequate facilities.

Consensus was reached that specialized programs for the severely disabled are inadequate and generally non-existent.

Are programs and services for the homebound individual adequate? The informants replied, "It's not there," "Probably not," and "Computer facilities are not being utilized to their capability." Other informants commented:

> I don't think it is impossible, but I don't think there is anything in place right now. There is nothing that I know of where a person could take a high technology course, say at home kind of thing.
>
> There are so many things that are possible with a computer such as opening and closing the front door. Turning the lights on and off can be done with a computer. Homebound people could definitely take courses out of their home and eventually work out of their home. It would make them feel more independent.
>
> Computer hookups could help the homebound a great deal. It could help them to learn because there are courses that could be sent via computer.
>
> Even individuals who are going mainstream may at some point in their education need to rely on a home source. If an individual who is physically disabled gets sick, sometimes it takes an awful long time for them to get healthy again.
>
> Even if your home was in a hospital, communication links could be set up.
>
> Computer hookups aren't all that hard to do nowadays.
>
> With advances in technology, you could use T.V. screens where you can interact with them, you can hear them, they can hear you, you can see them, and they can see you.

More assistance to the homebound was deemed desirable and feasible by the informants.

What kinds of programs and services would best meet the needs of physically disabled adults? Should they be mainstream or specialized? What was the personal preference of the informants? Such comments as "Mainstream setting is best for me" and "Normal settings are fine for me" were expressed. Two informants elaborated:

> I would choose mainstream because I would have more opportunity to compete with people that I will be competing against in a job situation, so I would become much stronger socially. The more people you meet, the more people you can learn from.
>
> For me, the mainstream and just being with society. I don't feel I have a need for that special attention or the extra accommodation.

Those informants who felt the need to attend a specialized school stated:

> Rather than being separate, I would like to see it integrated into the system.
>
> I would choose the specialized one with a setting where you are around able-bodied people. Actually that is what I liked about Jasper Place High School when P.H.O.E.N.I.X. was there. Then when they moved to Sherbrooke, the only people around were us. I would like an integrated setting.

Generally, the informants preferred to receive training in mainstream programs. They, however, recognized the difficulty of achieving this for all disabled persons. Those more severely disabled require specialized programs and services. Such programs and services are not perceived as being available. The informants preferred these specialized programs to be integrated in conventional institutions. Suitable programs and services for the homebound are also lacking but are viewed as becoming more feasible with advances in technology.

Category 2. The Nature Of Special Requirements For Physically Disabled Adults In A High Technology Learning Experience.

Seven concerns were discussed to probe the nature of special requirements for physically disabled adults in a high technology learning experience. An attempt was made to determine if the informants felt a high technology learning experience was to their advantage. They replied:

> Well, I think a high-tech learning experience suits my needs being that my needs are mostly physical limitations, and high technology is an aid to do physical things that I am not able to do.
>
> A traditional learning experience generally requires a fair amount of physical use of the body rather than just using the mind or using the body in a limited way. Traditional learning in most cases requires a lot of running around, a lot of walking up and down stairs, etc. I find that very difficult.
>
> For one thing, the physical conditions. I couldn't be a plumber, an electrician, or anybody who has to work with their body. Their body has to be able to work for them to be able to work.
>
> The goals of particularly the severely disabled requires a high-tech learning background. My needs are physical in nature. With the computer it is just a matter of touching the right key or the cursor or the mouse or whatever and movement is all done automatically. It just cuts down on the manual side of things. I can still draw with my hands, but it

> takes me forever to do what I can do in a quarter of the time on the computer and with less energy and strain.
>
> If you are disabled, you can't very well go out and be a laborer or something like that. You more or less have got to look at office type of work, and most office work now is very high tech with data word processors and computers and all that.
>
> If you are physically disabled, you do not have the capability of doing manual labor for the most part unless it is very well thought out manual labor. It also gives you an opportunity to be competitive in the job market today without having any physical capabilities.

The informants felt that high technology was a benefit to them, particularly with regard to their physical limitations.

The informants were asked to identify in what way they envisioned a high technology learning experience for physically disabled adults being unique. They advised:

> Flexibility and time.
>
> Being able to work at my own pace. Just so you don't feel rushed or shuffled along. Feeling you have contributed to the learning experience and that it wasn't all pushed on you.
>
> It would have to be very flexible. Like some people can't write at all; they have no use of their hands. So you have to look at things like that.
>
> The learning experience would have to be compatible with the individual, with the individual's abilities. Each individual has to find his own pace and be able to work at it so that the disabled person is not disadvantaged by creating stress. The disabled must be allowed to select and reach as far as they can because a lot of them can go a long way.
>
> The added opportunity for physically disabled individuals to be able to reach their goals through the use of specialized staff who allow for flexibility as far as hours go. If a person can't be there because of health reasons or is incapable of putting in a full day's work, then adjustments would need to be made. However, that is not to say it shouldn't be tough. I believe that if you are a physically disabled individual, I don't think, you can be equal to an able-bodied individual. I think you have to be better because the able-bodied individual has the ability to help in other areas whether it be moving desk furniture around, packing up boxes, getting to meetings quicker, or getting to certain places where there are only stairs.

One individual preferred the unique feature of such a learning experience be that "it was mainstream and part of the crowd." In the overall, however, the informants felt that the unique feature would be characterized by flexibility in such areas as time, manner of presentation, and physical accommodation.

The matter of program accreditation was discussed with the physically disabled adult informants. Should high technology learning experience be accredited?

> I think it is very important. Businesses, companies today are looking for the recognized well-known institution.
>
> Nobody knew what P.H.O.E.N.I.X. was.
>
> I think it should be accredited.
>
> Oh, it definitely has got to be recognized because like I went to P.H.O.E.N.I.X. for two years, and I got a certificate in computerized accounting that nobody will even look at. They say sure it looks nice, but it doesn't mean anything to us. They don't care; it is not recognized at all. So if it is not recognized, what good is it? It is not going to help you get a job.
>
> If it isn't accredited, then the piece of paper you receive when you have completed a course is useless. P.H.O.E.N.I.X. is not recognized.
>
> Very, very important. I can't stress that enough. It is the number one thing. People look at resumés and when you can't put that on a resumé, it is very hard to get into the job interview situation.

All agreed, and some emphatically so, that a high technology learning experience should be accredited.

In conjunction with accreditation, are meaningful credentials important? In reply to a question as to the desirability of credentials, the informants succinctly responded:

> Oh, it's not desirable; it's essential in any learning institution to have your success on paper.
>
> Oh, definitely, definitely.
>
> Oh, definitely, credentials that mean something.
>
> Yes, because everybody likes those pieces of paper that say something.
>
> Oh, yes, they are important when you are looking for work.
>
> I think so, well-known credentials.

In order to understand more fully the intrinsic value of a high technology learning experience for physically disabled adults, these informants were asked how such an experience would make them feel. They replied:

> It would be a positive experience. It would give you a sense of accomplishment, a feeling that you were going somewhere, you were heading somewhere.
>
> Positive, it's me.
>
> It would make you feel more confident. The more you can achieve, the more you feel as though you can achieve. So no matter how slowly you move ahead, it gives you incentive to keep moving one step at a time.
>
> I feel that it sort of straightens a person up psychologically, and you are sort of ready to take the next step in life to go out and use what you have learned.
>
> It would give me a feeling of growing academically and socially.
>
> If you can work and contribute, have fulfilling work, it gives you a positive feeling. It is depressing to always depend upon the government and your family for financial support.

The informants were adamant that a high technology learning experience would have a positive effect on physically disabled adults.

To determine if success was critical to physically disabled adults, the informants were asked if success in learning was more positive for them and failure more devastating than for able-bodied individuals?

> The likelihood of success is different for every individual whether he is disabled or non-disabled. Without success, without winning the little battles, and without progression, any individual will get depressed and lose his enthusiasm to grow in an educational setting. Probably in some cases the disabled individual needs a few more little successes depending on his individual situation. Some people who are physically disabled have had very little opportunity to succeed in a recognized way and so they don't even know what success is. For severely disabled individuals, some of their successes are very minor in the eyes of some able-bodied individuals and very major in their own eyes, and they should be recognized as such.
>
> I think success is more important to physically disabled people because you have to overcome your disability. You are one step behind everybody else kind of thing. You have got to more or less prove to yourself that you are able to survive in the world like normal people can.

> Yes, yes, it's just like anybody whether they are handicapped or not. I think to be successful at anything is a positive thing because then it doesn't inhibit you. If there is no success, then I don't believe self-esteem is very evident. Success is very important.
>
> I think success is an essential factor in a learning experience for physically disabled people.
>
> Success is imperative to everyone. I mean anything you take on is to succeed or to do the best that you can; like accomplish the ultimate goal.
>
> I think success is important, but at the same time, I don't think we should accommodate for it to the extent that standards are not maintained in a program for the disabled.

While all informants felt success was important for everyone whether one is disabled or not, some individuals felt it may even be of more importance to those who are disabled. The disabled may have to work much harder for their successes, and those successes may be very small but are of prime importance to them. One informant cautioned that success should not be gained or provided by compromising program standards.

Informants perceived that multiple purposes would be served by high technology learning experiences. As one informant put it, "For me, it might be a job; for the next person, it might be something in the fulfillment area." Other informants suggested, "The ultimate goal is to be employable," and "A fulfilling employment opportunity is the objective." Yet another individual enthused, "To keep the mind open, to socialize, to stay in the learning process."

Category 3. The Rationale That Would Prompt A Physically Disabled Adult To Undertake A High Technology Learning Experience.

Three concerns were addressed as probes to determine the rationale that would prompt a physically disabled adult to undertake a high technology learning experience. To facilitate the provision of high technology learning experiences for physically disabled adults, it is important to understand the rationale or motivation for their decision to seek further training. If they have a degenerative condition and their disability is worsening, would this be an incentive to learn, or would it only serve to discourage them? The informants had this to say as to whether worsening of their disability would be an incentive:

> Definitely. That is the reason why I did it. Like I say, I worked for a commercial printing outfit for quite a few years, and then I freelanced for quite a few years after that and then as it got harder and harder for me to do, I heard about P.H.O.E.N.I.X. and computers. I always looked at them as a technical aid.
>
> The worsening of your disability, yes, definitely.
>
> I would think so.
>
> That certainly is a factor, plus the fact that high technology is what makes the world go around today, so we must all change our outlook and our vocations.
>
> If they are not into high technology already, sure, yes, I could see that.
>
> That is something you definitely have to consider in some cases. Probably in 50 percent of the disabilities, you don't necessarily get worse. But persons who are becoming more disabled reason that they are losing part of their skills; their physical abilities are decreasing, so they have to become increasingly more saleable to an employer with their academic skills.

It seems that deteriorating health and increased physical limitations are factors in prompting a physically disabled adult to seek a high technology learning experience.

A poor economic climate often prompts able-bodied individuals to further their education. Does it have a similar effect upon the physically disabled?

> Definitely (laughter). I am in that position right now, so I think that it is definitely a major concern. When things are slow and people aren't getting employed, the number one thing is to go and improve your saleability through education. The people who are going to get employed are the people who can fill the positions most adequately. If economic times are good, your abilities don't have to be so great.
>
> Definitely. Without any schooling, you are not going to get a job right now; not unless you have some higher education. Now especially with the oil prices the way they are, the jobs just aren't there. The normal people can't get jobs, so how is a person who is disabled suppose to get a job?
>
> Well, yes, the economy is a factor. A person doesn't like to be dependent on anybody else for their income, including the government, so if they can be employed or self-employed, they are much farther ahead. Not only is it easier on the taxpayer, but it is much easier psychologically on the individual.

> I think, sure.
>
> Yes, I would do that.
>
> Yes, because high technology seems to be the future. It is not a fly by night kind of thing.

Clearly a deteriorating economic climate, like that which currently exists in Alberta, provides a strong incentive for physically disabled adults to turn to a high technology learning experience to improve their saleability in the job market.

Does the availability of job opportunities and the ability to perform functions or engage in activities not possible before the advent of high technology provide an incentive for physically disabled adults to seek further education? The informants alleged:

> Oh yes, with computer drafting everybody is going to have terminals in the future. So anybody who is thinking of board drafting would change their mind if they saw computer drafting available.
>
> Definitely, it opens a lot of doors that were not open before.
>
> Yes, the one thing that high tech does is it removes the barrier of being physically disabled. If an individual has high tech, he is able to prove that just because he is physically disabled doesn't mean that he can't be successful.
>
> High tech is a good way for a lot of disabled people to go. However, some people look at it as a big monster instead of looking at it as a tool to help you do your work. But the way things are going, you have no choice.
>
> Yes, physical needs are my concern, and the computer reduces the manual effort required in my line of work.
>
> Yes, I think so. It gets you where you want to go.

The informants were adamant that the availability of job opportunities and the ability to perform physical functions through the use of high technology were an incentive for them to return to further training.

The only other reason suggested for taking up a high technology learning experience was, "Just fulfillment too; like just for yourself, for your growth."

Category 4. Obstacles To The Availability Of High Technology Learning Experiences For Physically Disabled Adults.

The three concerns of physical, psychological, and social barriers were discussed with the informants. Such barriers have lessened particularly in the last decade, but they still exist. Physical barriers, including financial ones, were probed:

> The only barriers I had physically were the lack of washroom facilities nearby at N.A.I.T. and the lack of money. I had to work part-time, and I found that kind of hard some days depending on how much homework we had.

The remainder of the informants answered with their P.H.O.E.N.I.X. experience in mind:

> As far as mobility is concerned, I have an electric wheelchair, so I can get along with that. However, I require a personal care attendant for washrooms and that sort of thing, so that is still one of my concerns. One thing that impressed me about P.H.O.E.N.I.X. was that they customized and adapted tables and work stations. Everybody was sort of individual with respect to their physical needs.
>
> I had no physical barriers unless I had gotten sicker. Then I could have taken DATS, and P.H.O.E.N.I.X. was very flexible that way. However, DATS is not run the way it should be. I haven't ridden DATS but have talked with enough people who have and if you have to work and take DATS forget it; you would never get to work on time. As far as economics, I was on AISH (Assured Income for Severely Handicapped) at the time and they said going to school was fine, and the school was funded by the government, so there was no tuition. There were no fees for books. Everything was accessible to anybody, people in wheelchairs, whatever.
>
> In my situation, there were no physical barriers other than economical. It was more practical for me to go to a special setting than it was for me to go to a mainstream setting just because of cost.
>
> I didn't have the finances to go to a regular system. P.H.O.E.N.I.X., being a school for the disabled, gave me an opportunity where I didn't have to pay a high tuition which I wouldn't have been able to afford anyway. As far as mobility, I was well accommodated.
>
> Neither mobility or economics at P.H.O.E.N.I.X. I guess just the snow on the ground in the winter. My wheels get stuck.

A specialized program, such as P.H.O.E.N.I.X., was accommodating for the physically disabled in a physical way. Other institutions were less facilitating.

Do psychological barriers still exist for some physically disabled adults? Three informants, one of whom was severely disabled, did not feel any psychological difficulties related to their P.H.O.E.N.I.X. experience. One person stated that personally there was no problems but, "For others I could see it in their eyes." Another added, "No, going to school didn't really bother me." Yet another explained:

> No, I don't think I experienced any psychological problems. I had done nothing for a few years and so looked into going to school rather than the school coming to me, so I didn't have any problems.

Nonetheless, a severely disabled informant outlined the reason for apprehensive feelings:

> Yes, you see I had never attended school. All my schooling was done through correspondence. I had never been in a classroom as a student, so that was a bit of an adjustment at first. P.H.O.E.N.I.X. definitely cushioned the experience because it wasn't your standard school. I probably never would have gone to say N.A.I.T.

Conversely, one severely disabled informant reasoned:

> At P.H.O.E.N.I.X. I found myself depressed some days. Sometimes I thought maybe it was because I hadn't been around a lot of severely disabled people before at one time. My experience had been more one on one. In one room where there are ten or more, I found that kind of confusing. I had mixed feelings about that.

In the same vein, a mildly disabled informant suggested:

> There are a lot of psychological obstacles in a special setting that might not be quite as hard in a normal setting in lots of ways. If a person figures that they can handle the mainstream, it is very hard to justify being in a special institution because you have some guilt. You feel you are just attending because it is the easy way out or because it doesn't cost so much. I think emotionally that was something that I probably never overcame.

It appears that dependent on one's life experience, individuals might feel very differently about a specialized institution experience. Whether one is mildly disabled or severely disabled did not appear to be an indicator of psychological difficulties. While the specialized program was positive for some people, it had negative connotations for others.

Socially speaking, do the physically disabled experience obstacles? Again relating to their P.H.O.E.N.I.X. experience, four informants simply stated, "No," when asked if they had experienced any difficulties socially. Another explained:

> On, no, you know with all the other wheelchairs you weren't the only one there with problems. I might have gotten frustrated easier at N.A.I.T. I had been toying with the idea of going to N.A.I.T., and I probably still would be toying with it. P.H.O.E.N.I.X. helped me through the emotional peaks and valleys of a person who had an accident like myself.

However, another informant felt differently:

> It was definitely an obstacle in a special institution because I didn't really want to associate with or I couldn't associate with people who weren't socially strong or who I didn't consider socially strong. Whether they were or not might be a different thing. There were very, very few people that I went to school with that I would invite over to my house or consider true friends. I didn't respect them as far as reaching limitations or challenging themselves. It didn't have anything to do with how disabled they were. It had to do with their social skills and their own self-esteem.

The P.H.O.E.N.I.X. experience gave rise to different feelings among the informants with respect to the social aspect of the experience. The majority of informants had no social problems; however, one individual had difficulty in relating to fellow students.

Category 5. Efforts Physically Disabled Adults Would Be Prepared To Undertake In Order To Engage In A High Technology Learning Experience.

Five concerns were raised with the informants to determine what efforts physically disabled adults would be prepared to undertake in order to engage in a high technology learning experience. Would physically disabled adults be prepared to attain necessary academic prerequisites to attend a high technology learning experience? Three informants responded that "definitely" they would be prepared to do so. Another individual explained:

> Yes, I had started to do that, but there were a few obstacles in the way that made it very difficult for me.

A severely disabled informant outlined:

> Yes, probably. I think you have got to have your basics if you want to do anything. There is no point in say taking division if you don't know how to add and subtract just as a very simplistic example.

One informant was not as prepared to undertake prerequisite course work. This informant reasoned:

> I think I would take an equivalency test just to see if I were even close to the required level without having to go back and take a course. Like I am missing my English 33. I would rather take an equivalency test first and then see, I guess, if I would have to. I don't know, I really don't think I would. I guess I don't have to worry about it, so I won't.

Nonetheless, the majority of the informants expressed a willingness to upgrade and undertake prerequisite course requirements.

When asked if they would be willing to relocate in order to attend a high technology learning experience, one informant stated, "Sure," another stated, "Yes, if I had to, and I wanted to attend," and another added, "I think so, yes." One informant elaborated:

> If they were the best facilities in meeting my needs and were significantly better, I would move if that was high on my priority list at the time.

A severely disabled informant explained.

> Oh, yes, like if I didn't live in a major city, I would be a hermit or something because there are no transportation facilities in small towns. There is very little for disabled people in small towns. You must move to a larger center.

One informant asserted:

> I would move to an area where there is possibly an ideal facility but preferably to a warm climate where things aren't so damned uncomfortable.

The informants expressed a willingness to relocate if it were necessary to do so in order to attend a high technology learning experience.

Are physically disabled adults prepared to attain or arrange for any necessary equipment or transportation they may require in order to attend a high technology learning experience regularly? They answered, "Definitely, " Yes," "Oh, yes," "Oh, yes, definitely," and "Oh, yes, I do that now, but it would have to be there." One individual elaborated:

> Yes, I guess I would just consider that a part of the package. If you are going to go for it and you want to go to the best institution, then you have to prepare yourself to get to that institution and take the necessary steps whether they be physical or mental.

The informants affirmed their willingness to arrange for necessary equipment or transportation in order to attend a high technology learning experience.

Since many physically disabled adults are funded through the Alberta Vocational Training program or the Vocational Rehabilitation of Disabled Persons program, the informants were questioned as to whether they would be willing to apply for funding through the Students Finance Board to participate in a particular high technology learning experience. Such funds would have to be paid back whereas funds received through the other programs do not. They answered variously, "Yes, I would ask them for assistance," "Oh, sure," "Yes, if I want something bad enough, I will find a way," and "Definitely." One informant appeared a little less positive by replying, "I guess." Yet another informant observed:

> (Laughter) I think that is the only alternative that people have. If you consider yourself to be competing with able-bodied individuals in the job market, then you have got to go through the same steps that they do, and I think that is something people have to recognize.

All informants indicated they would be prepared to utilize the Students Finance Board in order to attend a high technology learning experience.

The informants were asked why they felt they would be acceptable and successful in a high technology learning experience. They replied:

> I think caring about the type of work I do, the quality, and trying to eradicate absenteeism which is very difficult at times.
>
> Well, I know the last year I was at P.H.O.E.N.I.X. I was doing a lot of contract work, and they seemed to be pleased with the work and came back for more. By that I think what I was doing, you know, I look at it as being competitive and as good a quality as done anywhere else for probably half the price if you want to look at what I have learned as being successful.
>
> Obviously I am there because I want it and unless something drastic happened half way through the program and I decided this really wasn't for me but other than that, there are a lot of things involved. I have been

> through the Students Finance Board. There are a lot of things on your shoulders. You don't let a lot of people down.
>
> I am not that severely disabled. I can get around fairly well, and I am more or less accepted almost as if I were a normal person, as if I had no disability. I have also proven myself at work.
>
> I would do it but at my own speed.
>
> Experience. I worked in a high tech field for a year in a very competitive situation and if I chose to go back, I would know what it would take. I would also know what to expect once I left school and work toward that goal while I was going to school.

The informants were generally very positive with respect to the efforts they would make and the activities they would be prepared to undertake in order to attend a high technology learning experience. They also felt positive about their abilities to participate in such a program, having attended P.H.O.E.N.I.X., and, in the majority of cases, having successfully used this training in the world of work.

Category 6. The Relationship Between The Degree Of Physical Disability And The Appropriateness Of A High Technology Learning Experience.

Five concerns were used as probes in ascertaining the relationship between the degree of physical disability and the appropriateness of a high technology learning experience. Do individuals who are more severely disabled than others necessarily require more services to succeed and complete the requirements of a high technology learning experience? With respect to physical facilities and accessibility, the informants replied:

> Physical facilities are important, really important. Not necessarily as important for some and very, very important for others dependent on their disability. Another thing that is very surprising is that the needs will be different even amongst the most severely disabled people. Also for some severely disabled people, some things aren't a concern, but they are very major to a less disabled person. So it is a case by case thing.
>
> If you are mobile it would be easier. As long as you can get there by yourself, you know, if you are mobile independently, it makes a difference. You can't have stairs and hills. Some ramps they have built are like ski jumps. If you ever do build anything like that you have to have consultants in wheelchairs. Or put the designers in a wheelchair for a day. (Laughter)

> Location and transportation really make a difference depending on your ability to get around. Unless there is a major change in the way DATS is run, it would make it difficult for a lot of people. Also with respect to jobs, I was the only one that P.H.O.E.N.I.X. even considered sending for the job I have because I can still do things with both hands whereas some people only had use of one hand. If you have to rip a report off the printer, you pretty well need two hands. I am also in charge of the printer, so I have to take care of the paper. I usually get somebody to carry it, but then I load it in the machine myself which requires both hands. I change the ribbon. That requires two hands.

> Yes, definitely. For one person in a wheelchair, they might be able to get up and down curbs; for someone else, they might need a full ramp. Even different washroom facilities are required. The more severe your disability, you know, they may need help when it comes to transportation; not just with maybe being driven but help getting into the vehicle. I think if adequate transportation is provided, the more severely disabled could handle any location.

> Maybe not so much say if somebody is a paraplegic as compared to a quadriplegic. They both need wide curbs and large washrooms and sinks that are cut away underneath. A quadriplegic though may need help in the way of an attendant to preform some of these functions or maybe attendant care. Both paraplegics and quadriplegics require transportation though.

> Things like accessibility, transportation, parking, close proximity of classrooms, for example, are far more important to the more severely disabled.

Generally, those persons who are severely disabled will require more adaptation of physical facilities, particularly with regard to transport and access. Additionally, physically disabled persons can often be best accommodated physically by addressing special requirements on an individual basis.

Would the ability to attain prerequisites and meet certain curriculum standards be hampered more by the severity of disability? The perceptions of the informants varied:

> In some cases, possibly, but in a lot of cases, no. I think it depends on the outlook of the individual. Most people I have met who are disabled certainly aren't lacking in education. Most have completed their Grade 12 and are willing to go on from there.

> Probably not. It is just a matter of wanting to.

> I don't think severity should matter. However, you would have to certainly be accommodating with respect to facilities and time for the more severely disabled.

> There is a possibility, and the system would have to be more accommodating for some people. You have to maintain a certain standard though.
>
> Possibly. The more I do, the more energy I use up, and the harder it is on me. I have to sort of regenerate. If the prerequisites are really necessary, then you would have to get them. With curriculum we all need stuff like social skills and physical education.
>
> Yes, depending on how severe an individual is disabled has a bearing on the educational opportunities of the individual. However, if you are going to go into the high tech market, you have got to be willing to make sacrifices even if it takes longer.

While consensus was not reached, the informants were tempered in their responses with respect to the escalation of difficulties in attaining prerequisites and mastering curriculum as disability worsened. As recognized by several informants, some adjustments in pace might be necessary.

Might the methods of instruction require alteration dependent on the severity of the disability? The informants responded:

> It has got to sort of be individualized more than to say everybody is the same. Like if you are unable to write or have great difficulty in writing, you would need to gear away from that or have some sort of alternative.
>
> Yes, individualized as much as possible. At P.H.O.E.N.I.X. it was supposed to be one on one, but it really wasn't.
>
> The severer the disability, the more you will need something set up that is more self-paced because some people take longer to do things than the next person.
>
> Some people can just dive right in and go, go, go, and others can't physically do that. You have to look at each person.
>
> The opportunity should be provided to work on a one on one basis.
>
> Some accommodating would need to be done for the severely disabled, but a lot of people push themselves a lot more when they do have to meet the required hours at a regular institution. I don't think they should be overtaxed, but at the same time, most people who are handicapped know they can do quite a bit more physically than they think they can.

All informants agreed that the methods of instruction may require alteration dependent on the severity of the disability.

Category 7. Criteria Perceived To Be Relevant In Determining The Best Type Of High Technology Learning Experience.

Eight concerns or criteria were reviewed to ascertain their pertinence in developing or choosing a high technology learning experience. As it appeared that a career planning program, which matched an individual's skills, abilities, interests, and temperament to occupational requirements, might be a natural first step in a learning experience, this feature was investigated first.

One person stated it was "definitely" beneficial while another suggested it was "best to find out what you are interested in" through a career planning program. Another stated, "I think you should go through a career planning sort of program," whether one was disabled or not. Another person stressed that "I know what I want to do, what I enjoy doing" but conceded that if an individual "had not done anything in the labor force," it would be advantageous to consider career planning. Two individuals felt that career planning does not always work:

> Sometimes career planning works, and sometimes it doesn't. Sure I may be interested in a certain area but when I get into it, I find out it is totally different than I thought it was, and I don't have the interest that I thought I did.
>
> I think career planning is an asset, but it is not; it is definitely not essential, and I think that you find that what you expect to get out of career planning is not necessarily what you always receive.

While no one felt that career planning was a detriment, not all informants were convinced it was necessary or essential.

The question then arises as to the appropriateness of academic prerequisites for entry. One individual simply stated academic prerequisites were "definitely desirable," and another suggested these should be "a type of screening." Yet another individual felt "they would have to have academic prerequisites" but mused that "if they had had that at P.H.O.E.N.I.X., I wouldn't have gotten in because I didn't have my Grade 12." This informant conceded, "I think they should have them but not have them written in stone." Another informant was most emphatic:

> Oh, I think having standards is extremely important for a couple of reasons. Not only when you are getting your education but once you leave the educational institution, you are expected to meet certain standards in your job place and if you are not used to meeting standards and working towards a goal with standards in mind, I think it is much more difficult to reach your capabilities.

From a practical perspective, another informant declared:

> Well, face it; most high technology areas you have got to have certain prerequisites. I can't really see anybody getting into a good field without at least a Grade 12 education.

The informants generally felt academic prerequisites were desirable.

The curriculum for a high technology learning experience for physically disabled adults might be very narrow, providing only training or retraining in a particular skill. Conversely, it could be broader and more diverse and provide a balanced growth experience. How should curriculum for physically disabled adults in a high technology learning experience be developed? One informant felt that a "physical education program" should be a part of any curriculum. The informant advised:

> I don't think it should be any less than for anybody else. I think it should follow the same format as a program for anybody else and be just as broad.

Because of the sheltered manner in which many physically disabled adults find themselves, particularly if they are congenitally disabled, such things as study skills and social life skills were emphasized by the informants:

> I find social skills to be extremely important for physically disabled adults. I believe that is one area where a number of disabled individuals are weak because of their growing up setting.

Consensus was that this experience should be as broad as possible and emphasis was made that the physically disabled should receive the same training as anyone else.

What methods of instruction should be used in a high technology learning experience for physically disabled adults? The informants answered:

> Well, I liked P.H.O.E.N.I.X. The idea of P.H.O.E.N.I.X. was self-paced, and I liked that. However, there are a lot of people who just can't motivate themselves. In talking to some others, one of their criticisms of P.H.O.E.N.I.X. was the fact it was self-paced and wasn't structured

> enough. However, I think self-paced instruction is the only way some people can learn because you can't force a person to learn something in an hour if they physically can't. I tire out very easily.
>
> It is very difficult at times to keep up with other people because most courses are geared to the pace of the ordinary individual. If you are handicapped in different ways, it is very difficult to keep up to their pace. However, some people take advantage of this, so you need guidelines.
>
> It takes us a little longer, so I think it should be self-paced. I guess you can't take forever, so you need some deadlines. It should be pretty flexible though.
>
> I think it depends on the disability. You need something that is self-paced for someone who takes longer to do things than the next person. However, ensure that they are moving ahead; pushed a bit.

One informant declared, "I could never go to school or work full-time because I would just get too exhausted." Another informant stressed the value of working in groups. This informant claimed:

> I think learning to work in groups, learning to adapt to different situations within a group, whether it be learning your strengths in a group or learning your weaknesses in a group, it is something that shouldn't be ignored. Basically every position that you go into in today's high technology, you have some interaction with other groups, and sometimes it is working completely in a group setting.

With respect to instruction or the teaching methods used in such a program, it was agreed that a self-paced approach would be most accommodating for the physically disabled adult. However, some relatively common guidelines or expectations were felt to be essential in order to maintain momentum and stimulate progress. It would also be beneficial to maintain a semblance of group order in the learning environment.

What setting would best meet the requirements of physically disabled adults in a high technology learning experience? The informants directed:

> I would like to see it integrated into what already exists rather than having a sort of isolated school for the cripples. Of course, there would be special needs, and I am not necessarily saying to stick somebody into classes already set up. A lot of rules or whatever that are set would have to be loosened for special needs.
>
> For myself I like mainstream, but there is definitely a need for better facilities in the mainstream or else specialized areas.

> Mainstream because the idea is to use your skill in an actual work environment, and the chances of getting work in a specialized work environment are slim.
>
> I think it should be mainstreamed. Like have your own building on say the university or N.A.I.T. grounds. At least there would be other people around because if you are out by yourself, you feel isolated or different.
>
> I would like to see a mixture. The sooner we mainstream people, particularly in technology, the better as it is a very competitive field.
>
> I think mainstream. I think most handicapped people would become absorbed by the rest of the people there. I think 90 percent of the disabled could function in mainstream. There would have to be some innovative physical things put into the institution for them.

The informants were adamant that the setting to best meet their requirements was a mainstream one.

Therefore, the next question to be addressed becomes one of how to best provide and administer programs and services for the maximum benefit of the physically disabled. The informants explained:

> I believe that mainstreaming should be the first alternative that is looked at in every situation if the person is capable of being a mainstreamed individual in educational opportunity. Unfortunately, not all individuals are capable of doing that physically.
>
> Well, I think most disabled people should be given the opportunity to say, yes or no, to mainstreaming. Some people want a sheltered sort of learning area, but others want to mix and learn that way. There are different degrees of disability. The very severely disabled are probably among the 10 percent who couldn't possibly make it in the mainstream institutions.
>
> Well, I like the way education has gone over the last 15 years or so, where they are going towards integration, and for the most part, I would say it is probably working okay. It is just that for people with really severe disabilities, they sort of get left out. They don't have any alternatives.
>
> Mainstream facilities should be open to all those who wish to attend them. I should think that all schools should have a degree of accommodation for the disabled.
>
> An individual with physical handicaps should have the same opportunity to obtain the same educational opportunity as anyone else regardless of his disability.
>
> I don't believe you would ever get one on one instruction at a mainstream school. A lot of people that I know can't feed themselves, so at N.A.I.T.

> or university, there definitely aren't any people around that are going to feed you. Forget it. The mildly disabled can be taken care of with some adjustments, but it is difficult for the more severely disabled. I thought something like P.H.O.E.N.I.X. was a good idea.
>
> We need to think of all levels of disability. I think there is a certain number of the population that cannot successfully enter a normal high tech institution, and for those individuals, a special environment should be provided so that they have the opportunity to become trained in the area in which they choose. They should have the opportunity to receive the same education at a special institution as those in a mainstream postsecondary school.

While mainstreaming was the preferred choice of the informants, they recognized the diverse needs of physically disabled persons dependent upon the nature and severity of their disability.

Accordingly, a range of requirements must be identified and accommodated. How might this be done? What changes would be required? The informants outlined the ways they would like to see mainstream postsecondary institutions respond to the requirements of the physically disabled:

> Be more flexible; not be so rigid; be understanding. Have physically disabled as consultants.
>
> They would have to be a lot more accessible. I have seen people in wheelchairs at N.A.I.T., but it is a pain with those elevators in that Tower Building I am telling you. Parking is a problem too. They need to be more flexible in allowing for more time to say write tests.
>
> They must be more flexible about time because some people can't physically go to school all day and do homework and study in the evening. Some physical alterations would need to be made. For example, N.A.I.T. could not be more accommodating unless they had more elevators.
>
> Mainstream settings will have to become more flexible and accessible. I think, unfortunately, that is probably the biggest thing that eliminates people from obtaining high tech or any education at an accredited institution in the province of Alberta; the inability to be flexible, whether it means in equipment or whether it means in going to class or being able to assist people with physical limitations. All institutions need a counselling service set up for physically disabled individuals.
>
> I would have a couple of people in there in wheelchairs to tell them what they would like to see. Likewise, people who aren't in wheelchairs but maybe with cerebral palsy who walk with canes. Have them as consultants.

Accessibility and flexibility, flexibility, flexibility.

Accessibility and flexibility are recognized by the informants as the major areas where changes might be made by postsecondary institutions to accommodate more physically disabled adults. As acknowledged earlier, much has already been done to facilitate accessibility, but this feature is still of some concern and requires continuing attention. However, flexibility in time and methods apparently is relatively rare and requires much greater attention.

Since it is recognized that not everyone can be accommodated, regardless of more adaptive arrangements in mainstream postsecondary programs, the nature of specialized programs and services must also be examined. How should these be organized and administered? Should such programs and services be integrated into the mainstream postsecondary institutions? The informants suggested:

> A specialized school should be integrated with a mainstream campus, but specialized within. It is good to have interaction with other students. Like I don't like to see a bunch of disabled people stuck in a building and sort of go from their home and back and never have contact with the rest of the world. I saw that in the Glenrose where kids came out of there when they were 18, and they really weren't prepared and really didn't know how to deal with the outside world; they were so secluded and nurtured and babied in their narrow little shell. So I am really for integration, but specialized facilities. Like within the system, I would like to see a specialized division. The same prerequisites and curriculum should be required but assistance to do physical things, and flexibility should be provided and allowed for.
>
> There is a need for specialized, separate divisions of mainstream campuses. The more severely disabled need a division where there is not so much pressure on them. I guess just where they can do it at the speed they can do it. Even for the more mildly disabled if there was a separate, specialized building on say the university campus then if they were going mainstream and they couldn't handle the normal university pace, they would have that to fall back on. This division would have its own administrator, department head, dean, or whatever.
>
> Specialized schools should be available. I would want it to be integrated in that able-bodied and disabled individuals would be able to attend the same school, but it would be totally set up and adjusted to the physically disabled so that things like the hours of operation would be fairly flexible to meet the needs of disabled people who can only work a half a day or have to have a two-hour sleep in the afternoon before they can complete the rest of their day. It would also have to have special equipment and attendants to meet the needs of the physically disabled. I feel it should be

> in a separate location so that the disabled do not get lost in the shuffle but have a percentage of able-bodied people attend so that the disabled population of the school do not feel a complete cultural shock on completion of their schooling.
>
> I think we should have specialized schools, and I think there should be a lot more research done into schools for the disabled. I know they have done a lot of research into schools for the mentally handicapped but not much has been done in line with the physically disabled. I think the people who do the planning for educational establishments should have a little more foresight in reference to the disabled because if they don't have disabled people going to a given school at this particular period of time, next year they may have three or four if more disabled people come out of the closet. When P.H.O.E.N.I.X. closed, there was talk about it affiliating with Grant MacEwan or N.A.I.T., and P.H.O.E.N.I.X. did very well in just a wing of Jasper Place Composite. It should work under a system like that. In each main city, say with a given population over 200,000, there should be a school of sorts or a department of a school for the disabled. But the bulk of them would fit into the mainstream very well.
>
> I think for some people there is no other way than specialized schools. I was sad to see P.H.O.E.N.I.X. go down the drain because it was a dream of a man who really wanted to make a difference for disabled people. He devoted the last part of his life to that school and if he were still around, things would be a lot better for a lot of people now. I wouldn't want it isolated but say an extension of the U of A or N.A.I.T.—like a separate division. Those attending would not be integrated into existing classrooms. They would still have to have separate facilities.
>
> We should have specialized schools for the severely handicapped only. It could be administered as a division or department, but they would need separate facilities where they could get special attention and also where they wouldn't be distracted. The more severely disabled may not have confidence and if they are with people with greater capabilities, it may impact on their learning abilities. I would want the instructors to be good. Pay them for their work because it is a really big chore.

While differing in their opinions about the manner in which specialized programs and services should be integrated with mainstream programs, the informants all expressed a clear preference for integration. Several informants referred to a separate unit or division of an existing campus while one informant suggested a separate entity which would have a smaller percentage of able-bodied persons in the student population.

Should sheltered workshops exist, and if so, how should they be developed and administered. The informants directed:

> I don't like sheltered workshops, but for some people, this is the only kind of place they could function. I think they could be operated in conjunction with the special division we talked about earlier.
>
> Sheltered workshops--I have heard so many horror stories. The name itself sort of bothers me. I have heard they are good, and the disabled enjoy getting out there and being able to work and be involved. Then I hear they are taking advantage of the disabled. It could come under the umbrella of that division we talked about. That was the course of action they planned for P.H.O.E.N.I.X., and it sounded like a darn good concrete proposal. It could spread out its tentacles all over the province and could provide communication with various disabled people in areas that have small populations and help warrant a special division. They should be watched and administered carefully.
>
> Sheltered workshops have value. There should be sheltered workshops even for individuals extremely highly trained in high technology but still cannot work in a normal work environment. It is not practical for them to work in a normal work environment because they can't put in a full day's work or they are not able to do the same amount of work as an able-bodied individual or at the same speed. It gives them a social environment to work in. It would be best to set it up in conjunction with the special school as a special wing.
>
> I think sheltered workshops are a good idea. They would be for the severely, severely handicapped people who might need somebody to feed them and might drool and might not be socially acceptable or something like that. It would be a good idea for those people to have a place to work. It would be administered under the specialized school or division. It could be self-sufficient with the school and the individual sharing because if they worked independently, they would have to pay for offices and equipment.
>
> You hear a lot of horror stories about sheltered workshops, but I have seen a lot of good out of them too. The idea of a sheltered workshop is often weaving baskets and doing mental labor stuff and repetitive things. I would not want that but contract kinds of things and meaningful work. I suppose they could be run in conjunction with the specialized divisions.
>
> I don't want to take the sheltered workshops away. Some people need them. It could be part of the special needs division. Let's not call it the disabled wing.

A great deal of ambivalence was expressed in connection with sheltered workshops. The value of this kind of facility was perceived, but the connotation of such workshops evoked much unease and emotion. On balance, the informants were aware of the benefits which could accrue from a sheltered workshop arrangement and envisioned it operating in conjunction with a specialized unit or division of a mainstream campus.

Are educational opportunities and cottage industry opportunities for the homebound desirable? If so, how should they be administered? The informants replied:

> Wouldn't that be nice. This could be operated along the line of tutors out of the special division or school.
>
> I think more and more emphasis should be given to computer hookups or telephone modems to the different learning institutions because to me, it is an excellent way to learn from home. Then to me, it becomes the way for people to work out of their homes. That way job sharing is so much easier.
>
> The homebound should be able to have access to programs through the use of T.V. screens. It would be administered under the specialized division, but they would have other people run that aspect of it.
>
> Provisions for the homebound should be part of the offerings of a special institution. The things that can't be sent over computer lines could be driven to the homebound in their home or hospital to provide a social outlet.
>
> Communication with a learning establishment would be quite an asset to those who are homebound. There are courses that could be sent via computer. Also cottage industries--my ex-insurance man was immobile, confined to bed, flat on his back, and he runs his own business.
>
> Training out of your home and cottage industries are a good idea. P.H.O.E.N.I.X. was going to do that, so I see it administered out of a special wing. Some people definitely require that.

The informants felt learning provisions for the homebound were urgently required. Some of the informants saw this being facilitated by computer and T.V. hookups, and another suggested tutoring. It was generally felt this provision and the cottage industry approach could be operated out of the specialized unit or division they previously supported.

Overall, the informants deemed it desirable to provide for all degrees of physical disability. They felt that the majority of physically disabled adults could be served in mainstream postsecondary learning institutions with some modifications. However, they also expressed a need for specialized programs for the more severely disabled and generally agreed this could be operated as a unit or division within mainstream campuses. Additionally, they endorsed sheltered workshops and learning opportunities for the homebound, as well as cottage industries. While the details of curriculum, instruction, and administration details were not addressed by this study, the perceptions of the informants have aided in conceptualizing the problem; that is, it helps to define learning requirements of the physically disabled adult in its most basic and general terms (Dunn, 1981:107 and 108). Nonetheless it should be kept in mind that high technology, as it relates to this study, refers to both those programs in a high technology field and those programs in unrelated fields utilizing high technology. Neither have the number or nature of learning institutions providing such facilities been addressed although, for example, Grant MacEwan, N.A.I.T. and the University of Alberta in Edmonton, have been variously referred to. As well, one informant did suggest there should be a specialized facility in each city within the province with a population over 200,000.

What priority should be given to support services? To what extent should they be provided? The informants answered:

> That is the service that I think should be number one. I think that is probably our number one stumbling block and should be the one that is given the most priority. I believe that every individual has some limitations whether they are physical or emotional. If we are able to help them with these limitations, then we will have a better-educated and better-rounded individual.
>
> You definitely need transportation and teachers' aides. You are going to have some people who have to be fed and things like that.
>
> For some people, support services are very necessary, but they are a minority. Only for specific types of disabilities.
>
> Support services are imperative for some people. Some may need transportation, and some may need special parking permits, for example.
>
> Yes, support services would be a necessity. I know a few students who have their own aides, but they are very hard to get, and it is very costly. It would be good to have a service within the institution to provide help for say washroom and feeding and taking notes and carrying books from class to class.
>
> For those who need support services, they should be there. Maybe that is part of their life-style to say have an aide. Why would we want to change that and disrupt their life-style? If it is related to their schooling and they can't do without it, it should be there. I don't think DATS should be covered but should be available. No meals should be funded.

All informants envisioned special support services being required by the more severely disabled. Otherwise, they felt only modest adaptations in the services normally available would be necessary.

Should funding be provided for a specialized unit or division? Should funding also be provided for the individual physically disabled adult to attend a high technology learning experience? The severely disabled informants responded:

> The school or division or whatever should be funded as any other school For the people able to attend the mainstream, when it comes to financial coverage, I don't think they should have any special provision. If they are in a position where they can go out and work after, they should be treated the same as anybody else. I mean for the more severely disabled a higher degree of funding should be available whereas someone like myself, I mean if I am able to hold a job, you know, it should be more in the sense of loans. I don't think it should be free. If I can work after I have my degree, just like the next guy, and he is paying back a $4,000 loan, I should be too. I think when people are given things, they take things for granted.
>
> Oh, yes, you see a lot of these things are very costly like say if you go into the mainstream and you require an attendant and you require special equipment. You see a person could handle a manual chair around the house, but to go to a large campus, there is no way, so you are looking at say $5,000 right there for an electric wheelchair. Transportation is also costly as I cannot drive.
>
> The program should be funded but I don't think it should be free because if you are paying for your education or part of it, you will have a tendency to go. Nobody should get a free ride. You have to be a little softer with the disabled. (Laughter)

The more mildly disabled informants agreed:

> P.H.O.E.N.I.X. is nowhere now because of funding. I think tuition should be kind of individualized really. If you can afford to pay, fine, and if you can't, then you should be subsidized. Funding for the student is very important because if you haven't been working and have no savings, you have got to live and eat and pay rent and utilities. VRDP, as far as I am concerned, is a joke. You can't live on what they provide; you can't live on four dollars a day and go to school.
>
> Funding is very essential for the program. I think the government should make sure the disabled do not have to suffer financially to take a course. It is difficult on the very low income disabled persons normally have.
>
> The school should definitely be funded. With respect to the individual, this is where the able-bodied individual and the disabled individual are a little bit different. The able-bodied individual, for the most part, is able to

> raise his own funds, but the physically disabled individual has a limited job market. Basically when you are physically disabled, you have got to use your brain instead of your brawn. Disabled individuals should be reviewed on a case by case basis because some have the opportunity to raise dollars. Opportunities should be equalized for all.

Since funding is provided for postsecondary institutions, it is the opinion of the informants that such should be the case for the specialized unit or division they have recommended. However, on an individual basis they did not wish any special treatment unless absolutely essential.

Category 8. The Possible Benefits That Physically Disabled Adults Could Derive From A High Technology Learning Experience.

Five concerns were probed with the informants to ascertain the possible benefits that physically disabled adults could derive from a high technology learning experience. Is an improved self-concept a benefit derived from attending a high technology learning experience? One informant having completed a course at P.H.O.E.N.I.X., stated:

> Self-concept, that is it right there, self-worth. I sometimes wonder if I didn't have, if I wasn't in the position I am in now, and I had no job, no background or anything, would I be sitting at home all day watching T.V? I just can't imagine that. I feel pretty good about what I have done.

Improved self-concept was also referred to by other informants:

> Certainly improved self-concept is a benefit. Anybody, if they don't feel that they have accomplished anything in the way of work or just in life, after awhile you can get pretty depressed and figure what is the use.
>
> If you succeeded at a course, I think it would make you feel better about yourself.
>
> If you succeed in the high technology field, improved self-esteem is inevitable. If you receive training in this area, then you partially eliminate the feelings of insecurity towards automation.
>
> A better self-concept, definitely. You know once you are out in the work force if you haven't worked and never really been on your own kind of thing, you don't know what it is like.
>
> Sure it gives you a higher self-esteem. You feel a lot better about yourself if you can handle yourself and know that you don't have to worry about where your next dollar is coming from.

A major benefit perceived as accruing from a high technology learning experience is an improved self-concept.

Might economic independence and fulfillment through employment be a benefit of a high technology learning experience for physically disabled adults? The informants suggested:

> The more you know and the stronger you are in this area, the greater degree of independence. This leads to the opportunity for job fulfillment but whether it is or not depends very much on the individual.
>
> Yes, it definitely should lead to more independence and if you are happy with your job, it can be fulfilling.
>
> Independence through employment is really important. Also you don't want to feel as though you are wasting your time or other peoples' time just sitting there collecting the wage. You want to feel fulfilled by doing something--to contribute.
>
> Certainly. I mean when you are on assistance and have the minimal amount of money to live on why, you know, you don't have the luxuries of going out for dinner or social activities or even on trips or stuff like that. It contributes to self-fulfillment substantially.
>
> Yes, definitely fulfilling employment and independence are very important.
>
> Yes, I think succeeding, climbing the ladder, doing a good job, and warranting a better job or a more attractive wrung on the ladder; I think that is very necessary to a person's outlook on life.

Economic independence through employment was also considered by the informants to be a significant benefit of a high technology learning experience. Fulfillment through employment was also deemed to be an important side benefit.

Might a more rewarding social life be a supplementary benefit to individuals who are attending or have completed a high technology learning experience? One informant merely responded, "Yes," whereas the others elaborated:

> Yes, of course, just getting out leads to other forms of social life or even recreation or whatever.
>
> Yes, you would meet different people--see that there are people worse off than you. I guess that is what P.H.O.E.N.I.X. did for me. There could be lots more wrong with me. Socially it was rewarding.

> Oh, yes, certainly. You still meet people and that and have friends, but you would be able to; instead of going for a Big Mac, you could go for steak and lobster.
>
> I would say so, sure. In the work setting, you meet more people. You get to know them better, and maybe they ask you over or something like that. Or they come over to your place. You can do things together.
>
> You spend 80 percent of your time with the people you work with, so your social opportunities are greater among those people. If you are able to contribute and be socially strong with these individuals, your social life will follow right in there.

The above comments leave no doubt that the informants perceived a more rewarding social life to be the result of attending a learning experience and then being employed.

Are physically disabled adults who are attending a high technology learning experience more accepted within the community than if they were not actively involved in bettering themselves? The informants perceived:

> I think the community looks at individuals as to what they can give the community and the more you have to offer as far as yourself and your skills are concerned, the more society looks at you as being a valued member of the community.. You become more accepted. For a disabled individual, it is probably even more so because it is something that they weren't necessarily expecting of you because of your limitations so they are even more pleased and more willing to accept you.
>
> Just getting out more, you get to know your neighbours better, and they accept you more. They would feel why aren't you working, you are capable of it, and you are sitting on AISH.
>
> Oh, definitely, because a lot of people that aren't disabled or have no dealings with the disabled still look at them as sort of having to be cared for not only physically but financially by the government but if you have a job and are sort of earning your own way, you will get more respect.
>
> Yes, I think they do. They see you out there, and they wonder how you do it, and sometimes it is really not that hard, but you have no choice.
>
> Yes, it is a benefit.
>
> I think most people who get involved in the high-tech field or other learning are looked upon in a little more respect or admiration from their neighbours and friends.

The informants perceived a greater acceptance of the disabled within the community if they were actively involved in education and employment.

Two categories of responses emerged as significant during data analysis. These categories had to do with sports and recreational activities and attitudes both on the part of the physically disabled and others in association with them.

Category 9. Attitudes And The Physically Disabled Adult.

Are attitudes on behalf of physically disabled adults themselves, as well as those about them, significant to their overall well-being and self-concept? One informant with a particularly positive attitude explained:

> Like this is the way I am. Like this is me. You see, that is the thing, I never think about it. I will get the odd person who will ask me if there was ever some miracle cure and I could walk again through an operation, would I do it? I don't think so. It was hard going from walking to not walking. I don't know what would be harder. Getting married was just like something normal was happening. I never thought I wouldn't get married. Twenty kids later!

Another informant emphasized that the attitudes of the physically disabled are critical in social settings:

> It is not the attitude of the non-disabled individual; it is the attitude of the disabled individual. I believe there is a very large population of disabled individuals who haven't accepted their disabilities, and I have always considered it to be the responsibility of the person who is disabled to make other people comfortable. Disabled people sometimes feel things should be given to them, and they should have the advantage. I think disability can be a big advantage in that your strengths and weaknesses are right up front with people.

Two informant felt that there were still some negative attitudes on the part of others to those who are disabled:

> Those who are handicapped in a more serious way or in a different way aren't necessarily accepted immediately. It might just take a little time. There are still a few blockheads out there who believe that physically handicapped are mentally handicapped as well, and you must prove to them that you are not.
>
> I think a lot of misunderstanding is not so much their problem as society's. Some people, for example, those who are drooling are able to think as clearly as you or I, but they sort of get shuffled because they aren't accepted. I don't like the idea of taking anybody and sticking them in the closet because of something that is not socially acceptable.

The latter informant nonetheless expressed the hope that attitudes were changing and further explained:

> Years ago somebody in a wheelchair missing a leg was stared at and considered kind of weird. That may still be so for some people, but disabled people were never seen in malls or restaurants or whatever say 20 or 30 years ago. Now the majority of people don't even look twice at somebody in a wheelchair or blind or whatever. You even see different ads on T.V. where they have a crowd of people and one of them may be in a wheelchair or one may be using a brace, so it is becoming more and more acceptable. I think in time probably the more severe or still not accepted disabilities such as somebody with severe cerebral palsy or very spastic or drooling will become more and more accepted. It is the young who are going to be carrying these attitudes on to their children, and there is a lot of awareness in the school systems at Grade 1. My sister's kids know I am in a wheelchair, but it is nothing special or different.

The attitudes of the physically disabled and their ability to accept their disability is significant to their well-being and their general outlook on life or self-concept. The disabled appreciate that some responsibility rests with them to make others comfortable with their disability. A first step in meeting this responsibility is having accepted your own disability and when you are comfortable with it, then you are able to make others comfortable with it.

Category 10. The Role Of Sports And Recreational Activities In A High Technology Learning Experience For Physically Disabled Adults.

Are sports and recreational activities significant for physically disabled adults in a high technology learning experience? The informants commented:

> Sports have probably been the most valued outlet I have had since I was 14. Sports have done a lot for me as far as confidence, as far as abilities, and as far as friends. I play wheelchair basketball, I swim competitively internationally with disabled athletes. I also swim in able-bodied competition, and I have also done a few triathlons. I am president of the Alberta Cerebral Palsy Sports Association. Sports activities should definitely be a part of any learning experience.
>
> The curriculum should have a physical education program too even if it is very minor. I have a little weight set here at home that I am using, and I can wiggle my toes a lot better than I used to, and I am a little stronger and have an extra finger moving on my left hand. Also my right hand is a lot stronger.

> I enjoy downhill skiing and swimming. Actually, it is called sit skiing. You sit like on a toboggan, and your legs are out in front of you, but you are all done up. You are in this little cart thing. It has runners on the bottom, and you zip yourself right up to the neck. You have little tiny poles, and you control the thing with your body. Sports involvement in a school is very important for the disabled.

Sports activities were important to several of the informants in a high technology learning experience.

Summary

The following propositions summarized the perceptions of the physically disabled adult informants:

> Proposition 1: Mainstream educational programs for the physically disabled, while improving, are generally functionally and quantitatively inadequate.
>
> Proposition 2: Specialized programs and services for the severely disabled and homebound are inadequate.
>
> Proposition 3: Physically disabled adults prefer to attend regular mainstream programs with able-bodied persons.
>
> Proposition 4: A high technology learning experience for physically disabled adults should be flexible relative to time and instructional methodology.
>
> Proposition 5: Learning experiences for physically disabled adults should be accredited and recognized as equivalent to regular mainstream programs.
>
> Proposition 6: A high technology learning experience could create positive feelings in physically disabled adults.
>
> Proposition 7: Success in learning may be more important for physically disabled adults than for the able-bodied.
>
> Proposition 8: A high technology learning experience may be of particular value to physically disabled adults relative to employment.
>
> Proposition 9: A worsening disability, a deteriorating economic climate, and the ability to perform functions previously not possible may prompt a physically disabled adult to attend a high technology learning experience.
>
> Proposition 10: While physical, psychological, and social bar-riers to attending a high technology learning experience have declined for physically disabled adults, they still exist.

Proposition 11: Physically disabled adults are prepared to do what is necessary for attendance at a high technology learning experience, i.e. attain prerequisites, relocate, acquire equipment, and take out a student loan.

Proposition 12: Physically disabled adults felt confident a-bout their ability to be successful in a high technology learning experience because of their success at P.H.O.E.N.I.X. and in the majority of cases, their success at work.

Proposition 13: The more severe the disability, the greater are the physical changes and instructional flexibility required.

Proposition 14: High technology learning experiences for physically disabled adults should include career planning, prerequisites, a broad and varied curriculum, flexible instructional timelines, and be an integral part of a mainstream campus.

Proposition 15: Regular mainstream programs should be the first choice for physically disabled adults attending a high technology learning experience.

Proposition 16: In order to accommodate the physically disabled, mainstream programs must be accessible and flexible in terms of time frames and instructional methodology.

Proposition 17: The requirements of physically disabled adults are diverse because of the diversity in the nature and severity of their disabilities.

Proposition 18: Specialized programs and services for physically disabled adults should be integrated under a special unit or division of a mainstream campus.

Proposition 19: Sheltered workshops are required for some physically disabled adults and should be affiliated with a special unit or division of a mainstream campus.

Proposition 20: The homebound urgently require programs and services which should be affiliated with a special unit or division of a mainstream campus.

Proposition 21: Support services for the more severely disabled should be provided only where necessary.

Proposition 22: Funding should be provided for individual physically disabled adults to remove barriers for them and for a special unit or division of a mainstream campus.

Proposition 23: Attendance at a high technology learning experience could give physically disabled adults an improved self-concept, economic independence through employment, a more rewarding social life, and greater acceptance within the community.

Proposition 24: The attitudes of physically disabled adults and those around them are significant in developing their self-concept.

Proposition 25: Sports and recreational activities should be an integral part of a high technology learning experience for physically disabled adults.

This chapter has presented the data derived from the physically disabled adult informants relative to the purpose of this study. Chapter VII will present the data obtained from the significant other informants in this study.

CHAPTER VII

Data Presentation—Significant Other Informants

The purpose of this chapter is to present the data obtained from the seven significant other informants in the lives of the physically disabled adult informants. As outlined in Chapter V, these informants consisted of two parents, one spouse, one sibling, one friend, one mentor, and one personal care attendant. Two informants in this cohort were also physically disabled. They were the friend and the mentor. Being emotionally close to a physically disabled individual who had experienced a high technology learning experience placed the significant other informants in an excellent position to assess their feelings and to ascertain the requirements of physically disabled adults relative to high technology learning experiences. The data are presented in an analytic fashion as it was in Chapter VI and organized in terms of the eight categories that support the purpose of the study as listed in Chapter III, as well as one emerging category concerned with the influence of attitudes. Furthermore, the data are arranged in an orderly fashion to present what is and what ought to be, the issues to consider when constructing a learning experience, the proposal, and lastly the benefits. The data are again presented in their original form through the use of quotations to allow the data to speak for themselves. Propositional statements are used to summarize the perceptions of the informants and thereby conceptualize the problem.

Category 1. The Existence And Adequacy Of High Technology Learning Experiences For Physically Disabled Adults

Four concerns were probed to ascertain the existence and adequacy of high technology learning experiences for physically disabled adults. The adequacy of postsecondary mainstream programs were first addressed. The informants stated:

> No, I don't think so. Not at the moment because the disabled can't physically get into them. No, they are not at all adequate.
>
> No, for one reason they don't provide support services in the schools. They have to find volunteers themselves. They do have volunteer services set up, but it is up to the disabled to find them, and it is not really a service that is provided.
>
> The institutions are there but will they accommodate the disabled? What about somebody in a wheelchair? If a person couldn't put in a full day, I don't think they have the flexibility to accommodate that.
>
> No, no, I don't think they are adequate. They aren't flexible enough. I think that would be the main thing. For the most part, they don't even have the proper physical facilities. It is a pretty limited sort of thing--putting ramps in, that a lot of people can't climb. They really don't have much of an idea. Some physical accommodation is about as far as they have gone.
>
> I think they are inadequate. I have seen people around university campus in wheelchairs, and actually this year, it is more so, but the classrooms are hard to get into--so environmental barriers and even going into the washroom; sometimes I can't open those doors when I have an arm full of books. I don't think we realize that even something very minute could stop someone from coming.
>
> I can see mainstream for some more than others. Paraplegics in a wheelchair would have less problem than quads. Someone with MS or cerebral palsy--it kind of depends on what stage they are at--could have a tough time getting around.
>
> Some physically disabled, yes, depending on the degree of physical disability. If they have a high degree of physical mobility but if they have a little more severe physical impairment, I would say no. There are still a lot of attitudes that need changing.

The perceptions of the informants were that mainstream programs exist but that they are generally inadequate. The degree of disability has a bearing on the adequacy of the setting for a particular individual.

Are specialized programs and services adequate? The informants responded:

> Not to my knowledge. Are there any? (Laughter)
>
> I don't know of any. I went to P.H.O.E.N.I.X. That was the only school that I was aware of.
>
> Not that I know of. P.H.O.E.N.I.X. was the only one I ever heard of. I don't think there are any.

> P.H.O.E.N.I.X. was the only one that I knew of. I guess there are none, no.
>
> P.H.O.E.N.I.X. is the only one I knew of. Yes, that is the only one I ever knew of.

One informant emphasized the view that there should not be segregated specialized programs and services and that everyone should be accommodated in a mainstream setting either in regular classrooms or in a special project:

> If we have any, we probably have too many. Instead of thinking that they should be in a school like anybody else, rather than looking at that as a first option, we may be looking at it as a second option if we can find a specialized or segregated institution. P.H.O.E.N.I.X. could have been part of a regular setting.

Generally, the informants felt that specialized programs and services were nonexistent to the best of their knowledge. Several people stated that P.H.O.E.N.I.X. was the only one they knew.

Do adequate programs and services exist for the homebound? The informants answered:

> Very little probably and there are a number of people who have done very well and have never gotten out of bed.
>
> There is nothing that I know of. With computer hookups, that isn't out of the question.
>
> No, I have never heard of anything. And there is homecare and things like that, but nothing that I know of that is sort of educationally geared.
>
> Not that I know of.
>
> No, nothing.
>
> No, it seems to me that is a field that could at least be explored because some of the support facilities would be there, and I think there is probably a great deal that could be done there. I am not an expert in those areas at all but just having some idea what can be done with computers, I think it is an area that should be looked at.
>
> What about Athabasca University on television? I think that would be a marvellous avenue. I know a boy who was a Harry Ainley student--I think in Grade 10, and he fell off the gym bars, and he is a total quad. This probably happened ten or twelve years ago. He has lived in Aberhart since he was 16 years old. He has been going to university all this time. I think he is taking law. They put lectures on a screen for him. I think

> there are ways that you can be educated at home, but it isn't happening that much, and you would need a director of a program like that. But, yes, I think, it is possible, and I think it would be wonderful.

The latter informant was aware of an individual whose learning was being facilitated by the use of computer hookups to university classes at the University of Alberta. With respect to programs and services for the homebound, the informants nevertheless felt that very little was being done for this group of severely disabled individuals. They also perceived a benefit accruing from such programs and services.

When asked what factor would determine the appropriateness of a particular educational setting for a particular physically disabled adult, the informants replied:

> Their level of mobility. Everything hinges on that. Getting there is a big problem. DATS, you have probably heard, is quite hopeless. So your level of mobility, I think, is the key thing there.
>
> It would undoubtedly be the degree of their disability. I think the main one would be the use of hands, but communication, speaking skills--speaking abilities would be another.
>
> Their capabilities, their abilities, whatever they could do with their capabilities, disabilities--what would be best for them in that area.
>
> Their capabilities.
>
> It is really hard to say. Like if you have a bedridden person and if they can't get into a chair, it is really hard to say where you draw the line and who goes where. I guess there would have to be guidelines.
>
> It is going to be different for each one. Some of them would rather get out there with the general public; some might be hesitant and just want to be with their own. It is too bad that some think that way. I think they should be broadened. They should go to the same school as everyone else. Sometimes they are not that well accepted. It is not that they aren't that well accepted; it is just that we don't know how to react so everyone gets an uneasy feeling. I think there is still a lot of that around.
>
> I think first of all it would depend on if there is a potential to mainstream the individuals we are talking about. To me that should be the first option. If that is not attainable for whatever the reasons, then a specialized situation should be probably the next alternative.

While such things as mobility, degree of disability, and capabilities were listed as criteria for determining the best type of educational setting for a particular individual, one informant suggested that attitudes on the part of both physically disabled individuals, as well as those about them, might be a deciding factor even though the informant inferred this should not be the case. This informant recommended a mainstream setting. Another informant suggested that a mainstream setting should be the first option in all cases and specialized alternatives should only be considered as a last resort.

Category 2. The Nature Of Special Requirements For Physically Disabled Adults In A High Technology Learning Experience.

Seven concerns were discussed to ascertain the nature of special requirements for physically disabled adults in a high technology learning experience. Keeping in mind that a high technology learning experience, as it relates to this study, includes both programs in a high technology field and those programs in unrelated fields utilizing high technology, the informants were asked how a high technology learning experience for physically disabled adults would differ from a traditional learning experience. They responded:

> If the person can keep up and if the facilities are there for him or her to work with, the main difference, as I see it, would be that it is tailored to the individual's needs.
>
> I would think that the educators would be aware of certain disabilities and compensate or be able to juggle certain things.
>
> It all depends what the people organizing this whole thing want to have them get out of it, you know, if they want to go full bore and meet it head-on or use it like a lot of things where they just go half into it and then only half benefit, or do you want to try and make a proper type of school for everyone's needs. But what some of them are going to need is technical aids or attendants.
>
> For the types of persons that I know that are disabled, I think a lot of them lack communication skills, so the use of a computer enables them to become independent. So I mean a regular school without having a computer or aids as far as a recording system or whatever, and plus they don't have any personal care attendants at these regular schools; they wouldn't be able to function at all. So I think high technology is very, very important.
>
> I would view high technology as allowing disabled individuals to function in a way closer to their able-bodied peers. It is a facilitator for the individual to attain the same skills and desirable qualities as anyone else. Disabled people often need skills in human relations more so than anyone

> else so anything that can be done to help them attain those qualities or skills has got to be a compliment to technology.
>
> I think emotional support is probably the main thing in a school like that.
>
> Flexibility, that probably is the key to it.

Accordingly, the ability to tailor programs, be flexible, or "juggle certain things" was considered to be a critical part of a specialized program. Also technical aids and/or attendants were deemed to be essential as facilitators for the disabled individual. One informant referred to the need for emotional support.

In similar vein, the informants were asked what would be the unique feature of such a learning experience. Their replies were:

> I suggest being able to gear the program to individual needs is the key because the other institutions don't do it. If there is one word, flexibility would be it.
>
> High tech and the emotional part and the understanding.
>
> It would be unique in that it would allow the individual to function in a more normal environment or more natural environment.
>
> It would enable the students to function at their highest level possible. It would enable them to be independent.
>
> Without high-tech aids, they wouldn't be able to do any writing or taking of notes. They just wouldn't be able to do it.
>
> The facilities, the high-tech facilities.
>
> The thing that would be unique is that there would be some technical devices available.
>
> The tailored aspect. One person might be able to go in and work five days a week whereas the next person might be able to only work three and a half or three because his strength or his endurance might not be there.

The unique feature of a high technology learning experience for physically disabled adults, therefore, is flexibility in time or methodology which allows for individual limitations.

It is desirable that such a learning experience be an accredited, recognized one? Two informants simply replied, "Yes," to this question. Others elaborated:

> It would be very important, definitely. I don't think they have any other choice. I think this is something that is a must. It should come about. It has to.
>
> Yes, it should. There is no reason why it shouldn't really, is there?
>
> It would be nice to see it accredited and recognized just to help people get more familiar with it. None of us ever hear about things like that, and that might just be another way of reaching out to the general public. It is important for the individual.
>
> In terms of the individual, no, but in terms of the way society looks at it, I would say, yes. In terms of what the individual is going to accomplish, I don't think it would make any difference to me at least.
>
> I guess; fundamentally, I don't think it is important, but realistically, people who are hiring other people need to have something to go by. They need to have a yardstick so if there is some way of describing the level of expertise or level of skill or whatever, I think that would be the ideal.

The informants agreed that the learning experience should be accredited.

In conjunction with accreditation, are credentials a desirable and necessary part of a learning experience tailored to the needs of physically disabled adults? Three informants simply replied, "Yes, definitely," "Yes," and "so far, they seem to be." Others reasoned:

> Yes, because unfortunately that is what our society looks at and if it is not accredited--like P.H.O.E.N.I.X. was an excellent program, I felt, but __________ wasn't given any credit for his courses at N.A.I.T. I am sure the courses helped him with the courses he is taking now, but they aren't given any significance. Like people don't know what they were. P.H.O.E.N.I.X. was very good, but it could have been exceptionally good had it been accredited. The people that came out of this facility are experts in their field.
>
> Some really want that in the work force. It is highly, highly competitive out there.
>
> Yes, if it is important to society, then it is important.
>
> A lot of us think so. I think it is important. I like to see that I have done my thing.

While not all the informants felt credentials were necessarily essential to the individual, they believed that they were essential to society.

How would the successful completion of a high technology learning experience make a physically disabled adult feel? The informants reasoned:

> I think it should make them feel good, darn good about it.
>
> It could do a whole lot for some people. However, it depends on the individual. I think that is particular to the individual.
>
> It could end up being a great feeling. I do think though that a lot of them need help getting that feeling. They can't be discouraged because they are slower than others. They have to be given the understanding that they are doing fine, and it must be recognized they are doing the best they can, and they need to be encouraged to keep up the good work. The old pat on the back, but you can't get too soft either.
>
> I think it takes a lot of energy to get out of your home and get into DA[illegible] or whatever and get to school and get your lunch and study, so I think they would have a real sense of pride.
>
> It would give them a high self-worth--a feel that they can overcome their disability to some extent. The evidence that I saw from some of those from P.H.O.E.N.I.X.--those I met and talked to--it seems to me that was the key to it; they acquired a feeling of self-worth very early in the program.
>
> Very good, very, very good, yes. I know that.
>
> Very worthy. They wouldn't feel they were such a burden to society. It would make them feel more independent. I am sure they all enjoy learning.

No doubt remains that the informants perceived that physically disabled adults would have a positive feeling about a high technology learning experience derived from an improved self-concept.

One informant noted that an improved feeling about self can only be achieved if one is encouraged and made to feel they are progressing. Accordingly, the informants were asked if the likelihood of success in a learning experience was paramount for the physically disabled adult. Is success more important to them than to their able-bodied peers? The informants indicated:

> I think it is as important to them as it is for anybody. It is an individual thing.
>
> Probably, yes, I think they would fall farther if they had a failure. Yes, I do. I definitely think that it would be a terrible blow to them.

> I think they get more accepting of failure than most of us do. They are used to it. It is probably very hard on them though. I think even small successes are more important to them, and they appreciate it more than some of the rest of us. I know with __________, he appreciates every little thing that he can do whereas the rest of us take it for granted and if we can't do more than that, we are frustrated.
>
> __________ takes failure harder than most people, but that may just be because he has a real drive and if he doesn't succeed, he just gets so upset. I don't think they are any grouchier than other people or any nicer than other people. Some might feel that they have more to lose or they have to work harder to compensate for their physical disability. They may reason my mind is the only thing that is working, so I really have to ensure that I succeed at this, so possibly they do.
>
> Oh, to some of them, it is crucial that they succeed.

Two physically disabled informants had differing opinions. They stated:

> I don't think so, Bernice. An individual who is disabled might fall and feel bad about it, but I think he has been down quite a bit during his life and so he has crawled up many times, so he might be able to cope with it better than someone who was supposed to have an I.Q. of 190 and couldn't get through. (Laughter)
>
> Very important and it depends on your definition of success. Generally speaking, society looks at success in terms of finances, but I think more and more as I become older I don't think just necessarily in terms of finances, but in terms of self-esteem, self-worth, and personal contentment and if you happen to make it financially, so much the better. I think it is something that the individual has to measure rather than using a societal measurement.

Consensus was not reached as to whether success is more crucial to physically disabled individuals than to able-bodied persons. Some informants felt it would be while others felt that physically disabled adults would be more accepting of failure and possibly more appreciative of little successes.

In what ways might a high technology learning experience prepare physically disabled adults for the future? In other words, what might the objectives of such a learning experience be? The informants suggested:

> It would give them a feeling of independence and control of their own life whereas previous to that, they may not have felt that. It will open up new doors because, you see, once you attain an objective and if you have any kind of normal drive at all, you will look for another one. So it would help individuals attain their potential and open up new horizons. It improves their self-esteem and if you have a high self-esteem, then you

> have much more potential to go somewhere. Another thing I think should be emphasized is something that probably everybody forgets a little bit and that is health and fitness because if you don't take care of that part of your life, then it is going to be very difficult to do the others effectively.
>
> In terms of using high technology to assist physically disabled people to become the most productive that they can be, I guess generally speaking we want to make people feel good about themselves and improve their level of self-esteem. It could change a person into someone you might want to have an indepth, intense relationship with that may lead to marriage. High technology can play a very big role for those who are restricted physically. Technology is moving so quickly that there are things that are going to be attainable two years from now that aren't even thinkable today.
>
> I would like to see them prepared so that they have an equal opportunity to obtain employment, which is probably very unlikely. Hopefully it would prepare them for the future in a realistic way. At times they get things their own way a lot, so I guess equipping them to realize that they are just another individual. A really well-rounded approach is really important. Because they may not be working or because they have stayed home for so long, I don't think they have a real--like their scope is sort of narrow.
>
> The experience should be broadening. It should give them the best possible enjoyment of life even if it is just to the point of being able to read, entertain themselves, or participate a bit in society. It should increase their confidence. I think it would give them a certain base to proceed with other things. It would give them the incentive to try things. After seeing what can be done, I am sure they would be prepared mentally to try other things to sort of push themselves as far as they can.
>
> The objectives should be broad but certainly basically job oriented because these people want independence. __________'s doctor said she would like her welfare bum patients to meet him. It would be a big, big step forward in their lives. __________'s favorite saying before he went to P.H.O.E.N.I.X. was, "I am a piece of--I am like a dead tree; I am of no use to society," and now he no longer feels that way.
>
> I think they should be educated towards a career if possible and if not, at least educate them, so they can be more independent in society and feel more worthy as a person. If they succeed with a career, it would make them more financially independent which also makes them less of a burden. They wouldn't have to live in a group home setting. They could live on their own. I think it would just be more beneficial for them all the way around for the future.
>
> It would give them the tools to be financially independent hopefully. Even if that doesn't happen, it is getting them out there--going to school, learning a few things. It is a social type thing.

The diversity of the comments not withstanding, the main thrust of the perceptions of the informants was that a high technology learning experience would have a positive and pervasive impact upon the future lives of the physically disabled.

Category 3. The Rationale That Would Prompt A Physically Disabled Adult To Undertake A High Technology Learning Experience.

Three concerns were addressed to ascertain the rationale that would prompt a physically disabled adult to undertake a high technology learning experience. The informants' perceptions as to whether the worsening of disability would prompt such action were as follows:

> For some, yes. They would see the benefit of high tech to enable them to do what they are now doing later after their disease progressed. For others, knowing their disease is progressive, they might just feel there is no use.
>
> I don't know anyone personally but reading stories about disabled people, this has been the case. They have prepared themselves. Well, actually I have a friend who has a daughter with arthritis, and she is preparing herself for life in a wheelchair so that is a valid reason.
>
> Well I think that is a case where they should be encouraged to take up training. They might be reluctant to admit they are getting worse and put off planning ahead to accommodate it. I think that is where careful counselling might be useful.

Two informants simply replied, "Yes," and "It may; it might give them the motivation." The two physically disabled significant other informants replied:

> Yes, definitely, that is why I was looking at getting further training to help me in a different field.
>
> Yes, that would be one reason.

The informants perceived that worsening of disability would most likely be an incentive to return to a high technology learning experience. In fact, this was the experience of one informant who was physically disabled. One informant, while agreeing it may be an incentive, felt worsening of disability could also be a deterrent as the individual might tend to give up. Yet another informant perceived an individual might be reluctant to face the fact that their condition was deteriorating.

With respect to a worsening economic climate and the effect it would have in encouraging a physically disabled adult to return to a learning experience, three informants stated in the affirmative:

> I don't know whether that would be an initial reason, but I think once they got into it and saw the possibilities, then maybe.
>
> Yes, I think that would be a factor.
>
> Sure, sure, a lot of people like their independence, and that is one of the best ways of getting it, I think.

Nonetheless, four informants perceived a worsening economic climate would not play a role or may even be a deterrent to a physically disabled adult returning to a learning experience. They reasoned:

> Many of them think that there are so many able-bodied people who are unemployed; how are they ever going to get a job? So I think economic climate is a factor. They read the paper and see the news just as well as anyone, and they wonder how they can compete; so why should they go to school, waste all their time doing hard work, and using elbow grease if they are not going to reap benefits?
>
> I don't think it would have too much bearing on it. Education is a long-term project.
>
> Disabled people, not to a great degree, I don't think. I think it might discourage them if they felt they were doing this, and they might not get work. I don't think that would be a great big thing.
>
> I don't think so, no.

Therefore, the informants did not reach consensus on the question of whether or not economic climate would have a bearing on a physically disabled adult returning to a learning experience.

Would the ability to perform functions not possible before the advent of high technology be a positive influence in physically disabled adults returning to a learning experience? The informants asserted:

> Yes, with advanced technology, whether it be say drafting or word processing, I think it would be advantageous. They would definitely look at that.

> Yes, I would think so, very much so. Just the knowledge that those things are there--that those things are there now being done electronically, remotely, or whatever high tech process is being used. This is one of the incentives that should be used in counselling too. It would also be worthwhile for their own entertainment even to access say electronic libraries and that kind of thing.
>
> I am sure. That would encourage me.
>
> Yes, I think that would be relevant. Yes, definitely, right. Oh yes, I think that would motivate them to take a course, sure.

Three informants simply replied, "Yes," "Definitely," and "Yes, I do." Accordingly, the informants concurred that a worsening of disability would likely be an incentive to return to a high technology learning experience and that the ability to perform functions previously not possible would definitely be an influence. They did not agree with respect to a worsening economic climate.

Category 4. Obstacles To The Availability Of High Technology Learning Experiences For Physically Disabled Adults.

Three areas were probed to ascertain if obstacles exist for physically disabled adults wishing to attend a high technology learning experience. First, do physical obstacles, including financial ones, exist? One informant simply replied, "Yes." The others elaborated:

> I think that is the first stumbling block that has to be removed because it is certainly there with the existing institutions. It would have to be addressed either through special facilities or changes to existing facilities.
>
> Oh, yes, I can see obstacles being in the way--just getting around. If it is a specialized school, I would imagine that would be accounted for--the physical stuff.
>
> Yes, definitely there is. I can see economics being a problem for some. Sure it is hard for them.
>
> Yes, economics would be a factor definitely. Mobility might even be a bigger factor. For one thing, you have to get to your place of learning.
>
> Yes, there could be economics, transportation, architectural barriers. Then again there is the matter of physical support around the individual.
>
> There are probably lots of physical obstacles there for the physically disabled. If they have the funding and backing or the resources, I think the ones that are capable of it should be able to attend.

Therefore, the informants clearly perceived physical difficulties existing for physically disabled adults attending a learning experience.

Do psychological barriers exist? The informants explained:

> Some, yes. Some are probably bothered by getting out there, and they get a little bit unnerved, or they may even get quite upset--not really upset, I suppose, but they are worried about getting out into the work force. I guess some of them would be a little bit afraid of it.
>
> Potentially, yes. A lot of it will depend on how many successes the individual has had in their life to handling previous obstacles. If you can accomplish in your mind, you can usually accomplish. Some physically disabled have been overly protected. It is really critical at what stage in their development they are let go, whether as an adult they will be able to come to terms with their disability. It is like taking a broken neck: if a guy breaks his neck and you move him prematurely or inadvertently, you could damage him forever, but with proper treatment at the onset of the injury, then he would have much more recovery than he would otherwise, and it is the same thing in terms of psychological and emotional things.
>
> They are very great, I know--things like fear of getting back in the world again. If you have been at home for a time or in a hospital for a time, fear of failure that you just simply couldn't cope with this new experience is great. Fear of problems such as incontinence can be a very embarrassing thing.
>
> Oh, I would think so. Yes, there has to be. It may take a very long time just to come to the conclusion that more learning would be beneficial.
>
> I think, definitely--I think everyone has a way of coping with their handicap and like anything, I guess, they go through a grieving process and if they haven't come to grips with where they are now, definitely that would have an effect. Like if they feel all they want to do is sit in a corner and die--I think it is pretty hard to motivate them. I think the thing that would have to be dealt with first is their psychological well-being.
>
> That depends on the individual. Some disabled persons have a very good attitude, and they are out there working towards a career goal or towards a personal goal in spite of society's attitudes toward them.
>
> They have got to think totally different, I am sure. There will be those they put upon themselves.

While all informants agreed there were psychological obstacles in the way of the physically disabled adult attending a high technology learning experience, they generally implied that these could be overcome mainly by effort on the part of the disabled individual.

Do societal barriers still exist? Does society still ostracize physically disabled adults in their endeavours to attend a learning experience? The informants perceived:

> Yes, there are definitely social obstacles, and I suppose that is one of the advantages of being in a group of individuals who have other disabilities, so they can sort of relate to others and see how they cope and talk to them and socialize with them and understand how they feel about it. I think there is a very great socially inhibiting factor. There is, there shouldn't be, but there is.
>
> Society looks at those in a wheelchair and figures they are mentally handicapped. I have gone out socially with lots of physically disabled people, and I have found it really frustrating when a waitress will ask me what they would like to drink.
>
> So often we look at someone, and we misinterpret and, for some reason, feed into their behavior and think they have all these personal qualities. Like there are times when __________ has been approached, and people have thought he was drunk because he wavers or he has a tremor when he walks, and I think that would bother me. I think it would bother me if I was walking along, and people thought that I was inebriated or that I didn't have any mental capacity. Yes, I think it affects them.
>
> Probably, but I think once they got into the program, it would be okay.
>
> Yes, and they can be quite devastating because we haven't come to the place where people take handicapped people for granted.
>
> Yes, definitely, society is very guilty of that.
>
> Yes, mingling, mixing, getting out and meeting people can be very difficult. That may be something brand new--really scary.

Accordingly, fear of socialization, either on the part of those around the individual or from the physically disabled themselves, can be an inhibiting factor. This may be particularly so on initial contact in a given setting, whether it be a learning experience or not.

It can be concluded that the informants clearly perceived physical obstacles, including financial ones, confronting physically disabled adults attending a high technology learning experience. While it was agreed psychological obstacles prevail, it was also felt they can often be dealt with by the individual. Social or societal obstacles still remain and can be frustrating to both disabled individuals and those around them.

Category 5. Efforts Physically Disabled Adults Would Be Prepared To Undertake In Order To Engage In A High Technology Learning Experience.

Five concerns were discussed with the informants to ascertain what efforts physically disabled adults would be prepared to undertake in order to attend a high technology learning experience. Attending a high technology learning experience may be arduous for physically disabled adults. They may also have to undertake some preparatory activities and make other kinds of adjustments in life-style. Did the informants perceive the physically disabled would be prepared to attain any required prerequisites? They answered:

> I think they would, but I think there might be a lot of problems there. They might need a lot of accommodation.
>
> Yes, I believe they would. It would depend on the individual, of course.
>
> I think that is asking a bit much, but they may be prepared to.
>
> Yes, I think they would.
>
> I think they would be willing. These things all build upon each other and if you have the background, it is going to be much easier, and I am sure anyone can understand that. For example, I can't see anyone going into a university program with a Grade 10 education and being able to write papers. It is much more possible you will fail if you don't have them.
>
> Yes, I think they would.
>
> I think that would probably depend a lot on the individual. I suspect they could be persuaded or encouraged to if they weren't too onerous. If you have individuals who has been disabled from birth, they don't even get into the school situation until later on, and they may not be learning at the same rate. You may have a lot of trouble encouraging them to get their Grade 12 if that is what is necessary.

While the informants felt that physically disabled adults would probably be willing to attain necessary prerequisites, some informants perceived this would depend on the individual. Other informants felt such a request or stipulation might be somewhat onerous for the physically disabled.

Would physically disabled adults be prepared to relocate in order to attend a high technology learning experience? The informants responded:

> It is unfortunate if it is not in their area but if they want it bad enough, I am sure they would move to an area where it is.
>
> I think a lot of them would, but I think it would be very difficult for them especially if they have been in a home situation and were going into a new situation. That is a very big consideration. It goes back to fear.
>
> I think so if they were physically capable, yes. The productivity of a severely disabled person often depends on their immediate environment. For me, here (auxiliary hospital) I have mobility, freedom, and I have the things set up I can handle and when I go to the next place, I don't because the carpets are too thick; I can't move, and I can't operate a normal phone or any of that stuff, so it varies.
>
> If they could be accommodated, I think so. That's a big move psychologically because it is uprooting. It might depend on their age.
>
> Probably but again that may relate to former experience in school, but I suspect, for the most part, an individual like that would be prepared to go some distance. I think it would depend a lot on the handicap and the individual and his previous educational experience. If it is physically possible, I suspect they would if they were not exposed to loneliness and if they were exposed to a group situation. It would be pretty well impossible to take the program to the hometowns of everyone.
>
> That would depend on the living facilities, but I am sure they would be willing if they could find living accommodations and support services.
>
> I guess it depends on how long they have lived there or if they are living with their family. That would depend on how much they wanted to get this education and how attractive it was to them. I think they would consider it, but it would depend on a lot of circumstances.

While the informants perceived physically disabled adults would be prepared to move in order to attend a high technology learning experience, they also recognized such a move would be fraught with many extenuating circumstances. Some of these circumstances could be their disability, accommodation and support services required, and the psychological factor of uprooting and leaving home. It would also depend on the individual and the desire to attend.

Would they be willing to arrange for equipment and transportation in order to attend a high technology learning experience regularly? The informants replied:

> Yes. They arrange for everything else. If they are going to a social function or if they are going visiting or if they are going shopping, they have to do that, so I don't really see that as a problem unless, of course, they don't get out at all.

> Sure. They are used to having to arrange everything like that.
>
> Within their financial limitations, I think they would. The people that I have been associated with, you know, any material thing that they could do to accommodate, they usually do one way or the other, but they can't all afford to have a van with a lift on it and that sort of thing. They are expensive. Some can't even get adequate wheelchairs
>
> I would think so.
>
> Yes, if they know how.
>
> I think if they got to the point where they were going to go, they would do anything to get there once they made the mental hurdle of deciding to go. I don't think much would stop them once they got to the point of wanting to go.
>
> Oh, yes, if they want to go to a school bad enough, they can get all that figured out.

It is, accordingly, the opinion of the informants that physically disabled adults would arrange for equipment and transportation and that they would be accustomed to doing so if they are at all mobile. One informant, however, did recognize the cost of such equipment.

In the past, many physically disabled adults may have been sheltered by funding programs that they did not have to pay back. Would they be prepared to take out a loan through the Students Finance Board if other programs were not available to them? Four informants succinctly replied, "Certainly," "Oh, yes," "Yes, I think so," and "Yes, I think they would be, sure." The remaining informants observed:

> If they knew that help was available that way, I think they would.
>
> Yes, I think people are usually not that stubborn that they wouldn't take assistance from them.
>
> Well, a lot of them probably wouldn't agree with that because even they might know themselves that they are not necessarily going to get a job afterwards, and they know they are still not going to make any money, so it is going to be tough for them to pay it back.

While the majority of informants felt that the physically disabled adult would not hesitate to take out a loan through the Students Finance Board, a divergent opinion was expressed that there may be some reluctance to do so as the disabled may fear they may not get a job even after attending a high technology learning experience.

When asked what qualities in a physically disabled adult would make them acceptable and successful in a high technology learning experience, the informants indicated:

> Just so long as they feel good about themselves. If they are working as hard as they can--that is the only time that I felt successful--is just by working hard, and I can see it myself; I am progressing.
>
> It would be their attitude and their willingness to work. Are they always trying to prove their worth? The individual has to hold up their end of the bargain.
>
> They have to have come to grips with their disability to some extent and be able to, in spite of it, have a certain amount of determination and willingness to learn. I suppose there has to be a certain determination inherent in the individual.
>
> Hopefully if the person is happy and enjoying the course and learning from it and is working hard towards a goal.
>
> Desire. Someone who is willing to really, really try. You can't just feel that because it is there I will try it and quit two or three months down the road. I guess desire would be probably number one, Bernice.
>
> Determination is number one. They need lots of that. I think the only word I would use is determination.
>
> Number one, they would have to be motivated and determined. They would have to obtain the proper prerequisites and the proper study habits, personal habits.

Words like determination, desire, and motivation were used by the informants to describe the qualities that would make physically disabled adults acceptable and successful in a high technology learning experience. Additionally, a positive feeling about themselves, being happy, their attitude, and having come to terms with their disability were considered to be significant factors.

Category 6. The Relationship Between The Degree Of Physical Disability And The Appropriateness Of A High Technology Learning Experience.

Five questions were used to ascertain the relationship between the degree of physical disability and the appropriateness of a high technology learning experience. Do physically disabled adults who are more severely disabled require more adaptations to meet their needs in a high technology learning experience than do mildly disabled individuals? With respect to physical facilities, the informants advised:

> Definitely. If you are looking at persons who are ambulatory, they have different needs than someone say who is in a wheelchair. Those who are ambulatory may have difficulty walking on really plush rugs and may need rubber mats and handrails and stairs may be better for them than inclines. However, inclines may be better for a person in a wheelchair. I guess you have to look at all disabilities. Certainly there are environmental things.
>
> Yes, in some cases you would need special bathrooms. There could be quite a variation in the type of building you would need or the facilities in the building. Each person's needs would have to be considered in the building of a facility.
>
> If you are more severely disabled, you might need an easier way to get into a building than climbing up stairs. You might need an electric go-cart. You might even need someone to feed you or help you in the bathroom. When I was going to school with some severely disabled individuals, I helped feed them during my noon hour when I should have been sitting back resting because I needed the rest, but there was no time for that.
>
> It would depend on the individual's needs, yes.
>
> Talking about a special program, I think it should accommodate those physical things that can't or aren't being accommodated elsewhere. The severely disabled require many facilities that are not provided in what we have now.
>
> Yes, a lot would depend on the severity of the disability in terms of the type of help that people need.
>
> There has got to be.

The informants evidenced consensus that the more severely one is disabled, the more accommodating physical facilities must be. They referred to individuality and the need for individualized physical accommodation.

With respect to the ability to attain prerequisites, do those who are severely disabled experience more difficulty than those who are mildly disabled? The informants noted:

> Unfortunately, probably, yes.
>
> I think if they are going to complete the program, they should be able to complete the prerequisites. If the prerequisites are realistic and necessary, then I would think they probably could attain them regardless of severity.
>
> I would think it gets harder to get those prerequisites, the more severe the disability.
>
> That depends too on whether the person is severely disabled from birth or acquired it later. He might have all the prerequisites. However, if he didn't with all this technology, it probably wouldn't be that hard.
>
> If the facility is funded for that type of thing, there shouldn't be any drawback as long as the accommodation is there. If it wasn't there, of course, the individual would have a tough time.
>
> I think if you could get out of bed, you could attend school and get the prerequisites.
>
> It depends on the impairment--like severely disabled cerebral palsy victims; they have trouble communicating or writing.

Several informants felt it would be more difficult for severely disabled individuals to acquire prerequisites than mildly disabled individuals. Two people suggested that if all the necessary technology was available, the difficulty should be lessened or eliminated. One informant felt that if an individual was able to get to an institution at all, they should be able to get the prerequisites required. Generally, then, it was felt that it would be more difficult to attain prerequisites the more severely one is disabled, but technology should be able to alleviate much of this difficulty if it is available to provide fully for the needs of the individual.

How should curriculum accommodate the requirements of those more severely disabled? Should it be altered? The informants answered:

> It should be broad and varied. Choices should be offered.
>
> I would think it could be standard.
>
> It has got to be tailored to the individual. I may be wrong, but I think you would have to accommodate or tailor it to the individual.
>
> I would have to say you probably would have to have it a little different, probably not a whole lot--a little more flexible.

> I think there has to be a certain standardization in the curriculum itself. It seems to me there has to be some sort of standardization even if it is stepped and graded in a number of different ways that might not be standard with the other institutions, but even there to the extent it can be, I think it should be.

> I think you should only adapt if absolutely necessary. That is a general rule of thumb that I like to operate with.

> There are such a wide range of disabilities there would have to be some altering.

While some informants preferred that curriculum be standardized, others recognized the possible need for some alteration for the severely disabled. Several informants felt the need for alteration of curriculum for the severely disabled, but this should only be to the extent necessary. It can be concluded that the informants recognized a need for some alteration of curriculum for those more severely disabled. This should be limited to that which is absolutely necessary.

Flexibility or alteration of instruction allows for a basically standardized curriculum to be presented in a variety of ways. Is this the area where flexibility should be exercised relative to the severity of the disability? The informants suggested:

> Yes, more one on one. It should not be a regular classroom setting with the teacher up there speaking to the whole class.

> There are two thoughts I have on that one. One is I don't think you should make special considerations unless it is necessary. The other philosophy that I have, which is almost contradictory, is that if you can accommodate someone without inconveniencing other people, then do it. If you do accommodate someone, you probably are creating an inconvenience, and I don't think you should create that inconvenience unless you absolutely have to.

> The tailoring should be done through instruction, the level of instruction, and the time element.

> Instructions would have to be a little more flexible.

> You might have to make some allowance for writing or taking notes. The time element may need to be flexible, but you wouldn't want it too slow paced.

> I think there would have to be some flexibility in the program. I think it could be fairly standard with a degree of flexibility.

> Ideally it would need to be flexible, but on the other hand, I can't realistically see having a program where the educator had to vary methodology for each person. Severity would have to be taken into consideration, and the educator would have to make some compensations in the way of communicating and teaching.

The informants agreed that flexibility or adaptation of instructional methods may need to be instituted to effectively instruct those individuals who are more severely disabled. Nonetheless, they generally called for moderation and would limit such modification to necessary instances.

Therefore, the informants perceived that the more severely individuals are disabled, the more accommodation may be required relative to physical facilities, the more difficulty may be experienced in attaining prerequisites, the more curriculum alternatives may be needed, and the more flexibility of instructional methods may be required and/or instituted. Both altering of curriculum and instructional methodology should be instituted only when absolutely necessary. The use of technology should aid in the accommodation of the individual.

Category 7. Criteria Perceived To Be Relevant In Determining The Best Type Of High Technology Learning Experience.

In preparing a proposal for a best type of high technology learning experience for physically disabled adults, a number of criteria are worthy of consideration. Eight such criteria or concerns were probed to determine the best type of high technology learning experience. The first of these is a career planning element which matches the individual's skills, abilities, interests, and temperaments to a given occupation. With respect to career planning, the informants felt:

> I think, certainly--any profession that you choose or type of school I think should have some sort of career planning in it.
>
> Yes, indeed I do, and that is really what P.H.O.E.N.I.X. was doing. They took temperament into it to a great extent because severely handicapped people are dealing with problems that the rest of us don't have to. You have to find the individual's stress level.
>
> I think so, yes, it would be definitely an advantage. There are no two people the same.

> Yes, definitely, it is done for the non-disabled, so why would it be any different for the disabled? In fact, they have more things that get in their way; more things to limit them so if they find out from the start what their limitations are, then it will help them instead of putting them into something they are not capable to doing.
>
> Yes, I think it would . Nonetheless, I am not convinced that career planning has reached a very high level of sophistication. I guess I am very much aware of the problems associated with career planning in this day and age. You need only look through the N.A.I.T. calendar to see all the different occupations and skills that can be taught, and for the most part, students don't have any way of really understanding what any of these mean. My children don't know what I do, or what I did as an engineer. One of them thought I flew back and forth between here and Calgary, which I did a lot.
>
> I would say, yes, in a yes and no answer. I would say, though, that career planning should be taken as far as to deal with those in the most severely, restricted institutional settings, as well as those who might be deemed to be more capable. I think there is a lot of human potential that goes untapped because we haven't taken the time or there aren't enough resources to sort of match people with opportunity whether vocational or avocational.
>
> I think so, yes.

While one informant recognized the difficulty and possible limitations of career planning today, all informants, nonetheless, recognized the value of career planning for the physically disabled adult. This need was felt to be more urgent for the physically disabled than the able-bodied by two informants.

Should a high technology learning experience designed for the physically disabled adult have prerequisites or entrance standards? The informants believed:

> I think there should be standards to get in whether they be academic standards or not, I am not sure. There has to be a way of filtering applicants.
>
> I think maybe the applicants should be tested for their academic abilities and then, depending on the career they are interested in, then it may be relevant, or it may not. It depends on the career and their capabilities. They have to look at the individual and find out their potential.
>
> I would say, yes, because if there isn't some sort of qualification, then the person who got into it might get so frustrated that he would bomb out or quit right away. Not so that they have to have a high, high qualification--as long as they had the ability type of thing. Some person may not have Grade 12 or 13 or 14, but he might be smarter coming out of Grade 10 or 11 than a person coming out of college or university.

> I think so; otherwise, I think that--like __________, he is a very motivated person and if he was just accepted into any program, I think a failure would be very traumatic for him. It is just a regulation of saying that you are adequately equipped to handle the program, and I think that certainly is valid.

> I think I would have to say, no. Perhaps they should have to pass entrance tests, aptitude tests; but I think the people who become handicapped have been dealt such a severe blow in life that to hold them back because they didn't have a certain level would be just another thing that they would have to learn to cope with in life. I think an entrance test. Obviously, somebody with a Grade 7 education, which wouldn't happen in this day and age, probably could not cope with a high technology program. I think a lot of handicapped people would be discouraged from going on to school if they were faced with having to upgrade their education to get into a particular program.

> Not necessarily. I think that that would probably depend on the subject and where we are trying to travel with the individual.

> I would think not. I think that would be very limiting and would leave a large number of handicapped without any way of getting to that level.

The informants were divided with respect to the use of prerequisites in a high technology learning program for physically disabled adults. Some informants felt prerequisites to be beneficial, and others felt they would be too burdensome and stifling for physically disabled adults. Curiously, one informant felt that prerequisites would be beneficial so as to prepare the individual against failure whereas another informant felt prerequisites would only provide another obstacle to be overcome, which would in and of itself be discouraging. Nonetheless, one informant who opposed prerequisites suggested an entrance test. Therefore, it can be safely concluded that while the informants questioned the need for prerequisites in all cases, generally speaking the majority recognized a need for some sort of screening.

Should curriculum content be job specific, or should it be an overall broadening experience for the physically disabled adult entering a high technology learning experience? The informants perceived:

> Ideally I would think it should be broader than just work related. It seems to me that any program should cover more than just the bare needs of the job itself because it is quite often just a starting job and if it is going to be any more than that, obviously a little broader background is needed.

> I think it goes back to the individual and what they want to get out of life. You could be dealing with one person in 1985, and they may have a very closed mind or be in a sheltered situation and you might meet the same individual in 1987, and their situation is different, so you might be dealing with the same person, but the circumstances might be different, and therefore, the way you approach the problem might be different. I would say they are probably looking at something that will bring dollars into their pocket, which will improve their quality of life. I also think that generally speaking disabled people, particularly those that are institutionalized, need life-skills opportunities because you just don't get the opportunity living in a sheltered situation unless you create them yourself.
>
> I think perhaps broader than P.H.O.E.N.I.X. offered. I think the more we are offered, the more open we become to the world.
>
> A very holistic approach. I think it should cover life-skills areas and not just strictly be zeroing in on the academic or technical area.
>
> That depends, Bernice. Some people are like myself, I wanted to get in and get out as fast as I could and get back into the work force. However, there is a broad spectrum of disabled people, and some have not had the opportunity to develop life skills. Possibly the curriculum should be tailored to the needs of the particular individual.
>
> I think it is important for them to be taught interaction, communication, and social skills, as well as academic and technical skills.
>
> I would like to see the curriculum broad. Give the individual the opportunity to look at other fields also, and then key in on the one they like the most.

Generally, the informants saw the need for a broad environment for physically disabled adults in a high technology learning experience. It should include social and life skills in addition to academic and technical training. Two informants leaned toward an individualized approach, with one informant recognizing that some individuals may only want or require specific job re-training to adapt to a new or worsening disability.

What approach to instruction should be adopted to benefit the physically disabled adult learner? The informants recommended:

> Self-paced is good so long as they are encouraged to try and keep up. Some of them I can see starting to take it real easy. I know even I am like that. So you need some guidelines. I guess that is where the teacher or professor comes into play. The teacher would have to have a broad understanding of each individual. They will not all be capable of keeping up with each other, so the teacher is going to have to have an understanding of each individual.

> It should be adapted to the individual although it should also have structured guidelines.
>
> It should be tailored. However, there should be definite time limits, goals to get through. You don't want to be spending 10 years where you could take a course in say 18 months or something.
>
> That is where I thought P.H.O.E.N.I.X. was very good because it was very self-paced but when you look at the work force, you are not going to be in a work force that is made up of handicapped people. They are going to have to generate their pace to the pace that is out there. I didn't see a weaning system at P.H.O.E.N.I.X. Educators need to be aware of the individual's situation and help them to find techniques to work more quickly. High tech should help.
>
> There needs to be a lot of personal attention to it. I think structured to a degree--more guidelines. As you know, at P.H.O.E.N.I.X. they could work at their own pace, but that can work the other way. People can sluff off. So I think it needs to be structured to a degree with some regard to the person's own needs, whether physical or emotional.
>
> Well generally speaking, individuals don't challenge themselves nearly enough. Like you don't run two miles until you have run one and a half, and sometimes it is going to take you a lot longer to get there but if you work at it and you persevere, you are going to get there. So self-paced sometimes can be good, but sometimes maybe it is not challenging enough or stimulating enough or it doesn't extend an individual to his capabilities. If people are self-motivated, self-paced is great, but there are some people who just don't have that motivation within them. They are more followers than leaders. If that is the case, then you would need to make adjustments. You would need guidelines.
>
> Well I guess if it isn't going to be self-paced, then I suspect the education can mostly be done in the institutions we have now.

The general feeling of the informants with respect to instructional methodology for physically disabled adult learners was that it be self-paced with overall guidelines and time frames. This should be individualized and care should be taken to keep the student moving ahead or progressing to his optimum relative to his physical abilities.

Did the informants prefer a mainstream or specialized program for physically disabled adults in a high technology learning experience? They answered:

> To the extent possible, I think it should be mainstream. However, a lot of mainstream facilities just can't accommodate say quadriplegics.
>
> Well I believe that we should be mainstreamed to the degree possible.

> I would like to see them mainstreamed into all institutions of learning, but not all of them could; that is the unfortunate part. I am thinking of many of the students at P.H.O.E.N.I.X. They just couldn't go into a regular institution, but generally speaking, I would like to see them mainstreamed.
>
> Ideally I think mainstreamed is much better. Certainly the people that are bedridden or quadriplegic and who usually have aides to take care of their bowel and bladder needs and to provide assistance to eat; I wouldn't expect educators in the mainstream to deal with those types of things.
>
> I would say it would be good to have them mixed if possible. It won't likely be possible for those very severely disabled.
>
> I would like to see them integrated instead of having them segregated in these special schools, if possible.
>
> If physically possible, I prefer mainstreaming.

The informants were of one accord in preferring a mainstream program for physically disabled adults in a high technology learning experience. While their first choice was mainstreaming, they generally recognized that such facilities may not be sufficiently accommodating for all those who are severely disabled.

The question then becomes one of how best to accommodate the physically disabled in a mainstream program. The informants suggested:

> I would supply a support service because they would need this to give them the same opportunity as anyone else. I would pay the aides. I would like to have different courses particularly designed for them. It would be integrated though, and I would like to keep it where they attended with able-bodied students as well. There should be a counselling program designed to find out their potential and their career goals. The teachers would have to be specialized in working with the disabled and know what is feasible to expect from each student. There should be a flexible time frame.
>
> It would have to be accessible, and they would have to have properly trained teachers there. You would have to implement into the educational system, let's say at the university, some courses that would be mandatory for teaching of disabled people so that educators understand the special compensations that might be necessary--that would be part of the person's job as an educator. I don't think educators have a very good idea of what the possibilities are so by offering a course of this nature, which could be broad and deal with general types of disabilities, then it is not a scary thing, not as scary. Then educators would be a little more equipped.
>
> As I said, I would like to see any physically disabled person who meets the academic requirements be able to attend say university. I am a bit hung up on how far we should go to accommodate them. I don't think

> we can expect the teaching staff to do more than teach in an existing school. Their work load is heavy, and it would take away from other students. I think certainly they should be able to get into buildings on their own if they want to. The bathrooms should be proper for them. Maybe aides should be provided to help these people.
>
> I think academically if a person is capable mentally there is no reason that you can't involve them in almost every opportunity. So with mainstreaming, it is attitude and willingness to make the program accessible whatever it takes because I think most of it is attainable. I have spent a fair amount of time in the physical activity area, and I think that is probably one of the most difficult to integrate because we are talking about physical activity. Those opportunities would have to be tailored to individual needs.
>
> It seems to me that there should be some overall responsibility taken for identifying what the needs are and what should be accommodated by existing institutions. I don't think that all institutions should be made to accommodate all kinds of disabilities. So I think someone has to say how far you have to go. You have to have ramps; there has to be accessibility to a certain level of disability. There has to be understanding. There has to be some degree of acceptance and accommodation apart from the physical. The institutions need direction as to what level of accommodating they must provide.
>
> Aside from physical things, they need to be more flexible and understanding. Methodology needs to be looked at.

While accessibility and physical accommodation is essential in a mainstream program, the informants also recognized the need for acceptance, understanding, and flexibility in instruction and curriculum, including physical activity for physically disabled adults. It was also recognized that all levels of disability may not be able to be accommodated in the mainstream postsecondary institutions.

Therefore, it becomes necessary to address the issue of specialized programs and services and how they should be administered. The informants recommended:

> There is no way many severely disabled people can go to university or N.A.I.T., so they need a specialized school. The specialized school should be connected to a larger school. I envision it as something like a department. Then they will feel they are part of the whole system. They won't feel they are going to that special school that is set up over there just for them.
>
> I think there will have to be specialized schools. I don't see how you can avoid it. I think to the extent that it can be brought under the umbrella of an existing organization, it should be. I don't have any illusions that existing institutions could accommodate that aspect easily, but I think if they are given the responsibility and the funding, they could

> accommodate. I think I lean toward something like a continuing education division. It seems to me that if it can be brought under an existing organization and it shares the common office facilities, registration, tuition, and that kind of thing that there is some kind of economic advantage, but it is probably not a big saving. The other thing is that I think there is a benefit to a disabled student in being able to say I am going to Grant MacEwan, or I am going to N.A.I.T.
>
> I don't think they should be separated as much as an adjunct to or a part of a major institution. I would prefer to see them brought as close to the norm as possible and maybe a division of it and in the same geographic proximity. A lot of time that has a real benefit. I think P.H.O.E.N.I.X. was a good project, but I think that same project could have been instituted within a mainstream environment. Say if it is part of the University of Alberta or Grant MacEwan or something like that, then an individual can say I go to Grant MacEwan rather than say I go to somewhere separate which is a known segregated setting.
>
> Some of those P.H.O.E.N.I.X. students could not go to a regular existing school. Maybe there should be one or two facilities for them in the province. I would love to see them a division of a main campus. I can see advantages to it being part of a regular school. One thing is psychological for the student feeling part of a bigger mainstream school and not off in an isolated school somewhere. It should have a residence.
>
> The mainstream cannot accommodate everyone, so in that sense, I would think a specialized school would be necessary. It could be set up like a continuing education division.
>
> Specialized schools integrated into say part of the university or N.A.I.T., or one of these would be good.
>
> I really think it is important to integrate people so if we have specialized schools, I would have to say they should be on a main campus. I believe it is better to have them within the mainstream of society on an existing campus and not have a segregated specialized school.

The informants were of one accord in their belief that specialized programs should be integrated with a mainstream postsecondary institution. They adamantly rejected a segregated setting. Several informants specifically referred to a unit or a division in their comments. The psychological value of attending an institution that was part of an existing postsecondary institution was emphasized by several informants while another informant referred to the value of an integrated setting as opposed to a segregated one.

Should sheltered workshops exist, and if so, how should they be administered? The informants advised:

> I guess for some people there is a need for sheltered workshops. It should be part of a specialized school or division--like N.A.I.T. is A, this other part is B, C, and D, and so forth and have it all one part of the tree.
>
> They are probably beneficial to some people but maybe the only reason they are there is because they haven't had the opportunity to be integrated with other people. But then again some people are so severely disabled that sheltered workshops are the only place they could work. In the specialized schools, you might have people with disabilities but not as severe as those in these workshops. The mildly disabled could be helping the severely disabled, and in turn, the able-bodied could be helping the mildly disabled. I think they could all work together. I think that would be beneficial.
>
> Yes, yes, there should be sheltered workshops. I think being part of the specialized school would be the best idea. That way there could be a greater chance of periodic evaluation.
>
> Yes, we need sheltered workshops. If it were connected with a school--a specialized school, they could spend part of their time in the school and part of their time in the workshop. It would be nice if it could be self-supporting.
>
> I don't like them because I think sometimes they are used as a first alternative rather than a last alternative. I think there are good ones and there is a place for them, but only after other options have been looked at. I would like to see it tied to something that is already existing rather than on its own, but that is just my own preference. For example, the specialized wing or division.
>
> Yes, I guess we should have sheltered workshops. I wish there wasn't a need, but I think I would have to say there probably is a need. It would be better if it were a completely separate project--not educational but perhaps under Social Services.
>
> Yes, I see a need for sheltered workshops. There should be some kind of integration or communication with a specialized kind of educational program.

While some ambivalence was expressed toward sheltered workshops, it was generally agreed by the informants that there is a need for them. Two informants specifically cautioned that they should be used only when all other options had been explored and exhausted. Several informants perceived a benefit to sheltered workshops being integrated with a specialized unit or division whereas one informant envisioned a totally separate entity provided for through Social Services. Therefore, the majority clearly preferred a program integrated with a specialized program which was part of a generic system.

Should educational opportunities for the homebound be provided as well as a cottage industry like opportunity for them to be productive? If so, how should this be administered? The informants stated:

> Yes, something like that is essential. It should be tied in with the special wing and monitored through it. Also working at home later would be a good feeling, I am sure.
>
> Ideally we should have. It could have the same teaching staff as a specialized school. It would be more difficult to integrate, but I think that would be best.
>
> It should be part of a specialized, mobile program--part of a specialized school. There are a number of mobile facilities if you are talking about somebody who is bedridden at home. If you are talking about something mobile, it could be over the television or telephone or on wheels, but again it should be tied to an already existing thing, like maybe Athabasca University or something. A Plato kind of thing possibly.
>
> Yes, I think if handicapped people at home can do anything at all, it would be beneficial. It should be government funded and part of a specialized educational facility.
>
> I think training facilities for the homebound and a cottage industry type thing is an excellent idea. I really think that these things are hard to get off the ground and if somehow they can be a branch of something or a larger conglomerate and sort of a branch off, I think there is more chance of it surviving. That sounds fantastic.
>
> Yes, we need facilities for the homebound. A possibility would be administering it through the special wing. Private industry might take over that kind of thing too. Computer hookups could be utilized.
>
> I think so; sure we need facilities for the homebound. The facilities should be altogether. I think it would cut down the cost. Like P.H.O.E.N.I.X. was in J.P. (Jasper Place Composite High School).

The informants were of one thought in expressing their desire to see educational and work programs for the homebound come to fruition. All informants agreed such provisions should be made available through an existing institution with several informants referring specifically to integration with a specialized unit or division.

Generally, the informants preferred that a mainstream, generic system be a first choice for those physically disabled adults able to attend them. They, however, recognized the requirement to accommodate for those more severely disabled and subsequently recommended a specialized unit or division that would administratively and physically fall under the umbrella of a mainstream campus. They also recognized a requirement for sheltered workshops and learning and working opportunities for the homebound. They generally recommended these facilities would fall under the umbrella of the specialized unit or division. Consequently, those with all levels of disability would be provided for.

Support services often play a necessary and critical role in the accommodation of physically disabled adults in a learning experience. Should such services be provided? The informants proposed:

> Yes, whatever is required to enable a person to attend.
>
> Yes, to give them the greatest opportunity. Who is going to pay for it? I guess it would be the taxpayers. It is easy for me to say; yes, I think there should be support services.
>
> Yes, if it helps them. I think you might just as well go the gamut because if there is something that is missing, some component that is fairly vital, and we don't provide it because we are cutting costs, then we are just doing a disservice. That might be a vital component to someone that could otherwise really prosper from a program. So it has to be really well-rounded.
>
> I don't see why not. There should be support people to feed people and help them in the bathrooms if necessary.
>
> Definitely when it is needed. People are often capable of doing more than they think they are, but there are a lot of people such as myself who could do much more if we had assistance. It may look expensive, but I think in the long run it is probably a benefit to society to do that, and I can cite examples where I have seen that work. I think there is probably enough money already being spent that with a reorganization of priorities, we could probably do it with the dollars being spent and make better use of it.
>
> I would say so. I think the cost of not doing it is more than the cost of doing it. I don't have a good feel for what level. Obviously there comes a time where you just can't bring enough support, I suppose, into an isolated situation outside a hospital.
>
> Yes, there have got to be I think. Man, it would have to be quite the school to accommodate people who can't feed or toilet themselves.

If support services are necessary to accommodate a physically disabled adult in a high technology learning experience, the informants felt strongly that they should be provided.

One informant pondered the degree to which this should be provided. While short term costs may be high, the cost of not doing so may be higher.

In today's economy, the question of costs and funding becomes a prime consideration. Should the programs recommended be funded? Should the individual be funded? The informants advised:

> Funding the school is the only way I know of. The same as the university or N.A.I.T. For the individual, if they have no other way to attend, they should be funded and maybe even have a pay-back type of thing if the individual could. It might not be good to just fund them for everything. However, none of the physically disabled that I know of have any money to begin with.
>
> The institute, yes, definitely. That is not to say that it couldn't be partially student supported or tuition supported, but I think it should essentially be fully funded. For the individual, each person has to have some means of support, and for the most part, I can't see how they could progress without some kind of support. I think if they get off the public support system that would be ample reward for the rest of us.
>
> The service should be funded. It is very difficult for the individual to come up with in terms of dollars, so I would say there has to be. I think again even though it may cost money to get an individual productive or feeling better about themselves if we are going to keep them alive, then we should be prepared to do all we can to improve their quality of life as much as we can. There is a point where they have to take some responsibility, but it is a real shame to see a bright, young mind inactive because there are no dollars available. Do we let an individual vegetate and become a burden to themselves and a burden to society when, in fact, there is some productivity potential there? You spend $180,000 raising a kid, and he may turn out to be a junky. You never know; even raising a kid can be risky.
>
> The school should be funded; I definitely think so. The individual too if necessary. __________ hated his government cheque, and the day after he got his job, I heard him phone Social Services and with great pride in his voice thank them for their help in the past and telling them he would no longer require their help because he had full-time employment. You see there is a person who, because he went to a government-funded school, was able to become independent; so far better for the government to put that money that he would have been given all his life to schooling.
>
> I can't see any reason why it wouldn't be. University is highly subsidized. For the individual as well if they need it. A lot of them have no training, so in the long run, it would be a benefit.
>
> Yes, the school should be funded because I believe they should save the same opportunity as non-disabled persons and just because they were born with a disability that they should not be educated. I believe the

> taxpayer should pay. I don't think the individual should be totally funded because they are disabled. The disabled want to be treated equally. I think the traditional way of funding, where you borrow and pay back, would be acceptable to them.
>
> It should be a government-funded institution. A tailored package for the student would be best where they pay if they can.

The informants did not question but that a learning program for physically disabled adults should be funded. They also felt funding should be provided for the individual if this were necessary in order for them to attend a high technology learning experience. If the individual were in a position to pay for their education, then the informants felt they should and as expressed by one informant, this would be something they would wish to do. One informant recommended a pay-back arrangement. The long-term benefits were highlighted by others.

Category 8. The Possible Benefits That Physically Disabled Adults Could Derive From A High Technology Learning Experience.

Five concerns were probed with the informants to ascertain the possible benefits that physically disabled adults could derive from a high technology learning experience. If an expenditure is to be made in time and finances designing and implementing a high technology learning experience for physically disabled adults, it is desirable, if not crucial, that there be benefits derived by such an experience. This section explores the possible benefits of such an experience for physically disabled adults as perceived by the informants. Would an improved self-concept be a probable benefit? The informants reasoned:

> Yes, I think so. I think it would make him feel better. The individual would feel more secure going out into the work force knowing that he has training. It would give him quite a lift.
>
> I can't stress that strongly enough. Knowing that they can make a contribution is valuable. It is valuable to their self-esteem.
>
> Yes, they would have a better self-concept, a better feeling of self-worth, sure. Hopefully that is kind of why they are going; hopefully, they know before they go that they will feel a little better about themselves.

Four informants replied positively but succinctly. They stated, "Yes," "Definitely," "Oh, yes, I think so," and "Yes, sure." The foregoing responses clearly indicate that the informants perceived a probable benefit of a high technology learning experience for physically disabled adults to be an improved image of self or, in other words, an improved self-concept.

Would such a learning experience lead to a greater degree of independence through employment, and could such employment be fulfilling for physically disabled adults? The informants answered:

> Yes, sure, so they can get better employment or work their way up the ladder. It could be very fulfilling.
>
> Definitely because they are going out the door, and they are mobile, and they are moving around, and they are involved, and they are no longer in their own little world. It should be a very rewarding, fulfilling experience for them.
>
> No doubt about it. It is bound to give them a greater feeling of independence. Yes, sure it would be fulfilling.
>
> Yes, employment is a big factor, I think. Very definitely, it would be fulfilling, yes.
>
> Yes, yes, independence would be a benefit. Fulfilling--oh, yes, wow, oh, yes.
>
> Independence would be a big thing, yes, very much so. Almost any work would be fulfilling for them considering what their lives may have been like before.
>
> I think so, sure, because if he has got the training, the knowledge and if he can get out working then, of course, he can get his own suite, he can go to the opera if he wants to. It is ongoing--very fulfilling.

The informants were emphatic that a definite benefit of attending a high technology learning experience be employment which could lead to a greater degree of independence and fulfillment for physically disabled adults.

Might a physically disabled adult enjoy a more regarding social life through attending a high technology learning experience? Would such an experience afford them a greater opportunity to interact socially and get out with other people? The informants perceived:

> That too because I don't think there is anything that holds a person back more socially than if he is not out there mingling, doing, working.
>
> Yes, I think any situation where you are with people rather than being home alone all day is definitely a social reward.
>
> Yes, definitely.
>
> Yes, yes, I think regardless of how far the individual gets in the course and whether they become fully employed or not, I think it would contribute to their social fulfillment.
>
> Oh, I would think it would because we are giving them interaction opportunities that they wouldn't be getting normally, and this would help the social aspect with their self-esteem going up and if they got some positive feedback, it would spill over into other areas of their life. I would say that would happen.
>
> Oh, I think so. Your work or schooling is so much a part of your life. So many of your friends are associated with school or work.
>
> Definitely, they are having to socialize with other people on a day to day basis--more contacts. If they are home taking correspondence, they are not having much contact with other people. I think it enables them to develop communication skills.

The informants perceived a fuller social life to be a benefit derived by physically disabled adults attending a high technology learning experience.

Are physically disabled adults who are actively pursuing a high technology learning experience more accepted within the community than if they were not so engaged? Would such involvement and effort on their part improve their image within the community and grant them a greater degree of respect? The informants maintained:

> I am sure the community would admire a person for that effort.
>
> Definitely. People would view them as really putting forth an effort and just not content to live off the government.
>
> It certainly is possible; it would be a benefit. If an individual is seen to be doing well and doing the best they are capable of doing, then I think society has to have respect for that. Also these people could become role models for other people, and I see that as a definite benefit.

> Oh, yes, the more that they get out there, the more they are going to be accepted.
>
> Yes, definitely, I think so. Just being visible and putting forth an effort is bound to create a greater degree of acceptance for the physically disabled in the community.
>
> Yes, I think __________ has done a lot in that particular company for handicapped people. I am sure they wouldn't hesitate hiring a person in a wheelchair now. I know that he has been very well received and that they realize that they don't have to cater to him and that he is just like any other person there.
>
> I think there is probably that part to it too. They will see the person is really trying to improve himself, to do things. He might be falling down every time he goes ten steps, but at least he is picking himself up and keeping going.

Greater acceptance within the community was perceived by the informants as a probable benefit to physically disabled adults attending a high technology learning experience.

One category emerged as significant in discussion with the informants. That category had to do with attitudes.

Category 9. Attitudes And The Physically Disabled Adult.

The attitudes of the physically disabled adult can often affect the attitudes of those around. One informant explained:

> We don't know how to react so everyone gets an uneasy feeling. I think there is still a lot of that around. Often the general public doesn't know how to react because they feel the tension coming from the physically disabled person's side. I have met friends through __________, and I know the ones that are just happy-go-lucky, and they are the best people you will ever meet, and then there are those where you can tell before you even meet them, there is a little bit of tension there, and you don't know where to start either.

An informant who is physically disabled further suggested:

> If I don't feel good about myself, my situation, if I am uncomfortable with it, I sure can't expect other people to be comfortable with it. But yet if I come across as as person who has accepted my situation, is doing the best that I can in terms of living with it, handling it more as an inconvenience rather than a deterrent, I think people will respect that and respond accordingly but if I am really up tight about it and I am not comfortable, then they certainly won't be. But I realize the problems become worse with the type of disability.

In the same vein, another informant emphasized:

> I think they (physically disabled adults) can change attitudes in other people themselves. If they have a positive attitude about their disability, if they project that then once you know such individuals, you will overlook their disabilities.

Nonetheless, attitudes of others around the physically disabled adult may still be negative and destructive. Other informants explained:

> I am afraid that some of us are very prejudiced against people who have physical disabilities. There is a bias. If they were more visible in the community, it wouldn't be such a big thing. Many people lump them into one category and feel if they are handicapped, they can't do this, and they can't do that, and they probably have a low I.Q. When __________ first got M.S., I was the one that would really get upset. When we used to go shopping, I used to glare at people because they used to stare at him.
>
> I introduced __________ at Woodwards Food Floor recently to a highly-educated person whom I know quite well, and she was very embarrassed and stilted. I was quite amazed. I was also absolutely astounded by a relative who is a medical doctor who suggested that __________ would have to find friends in wheelchairs once he was in one. Do you believe that? If it happened to you or me, we would want the friends we have had. We wouldn't go out seeking people in wheelchairs.
>
> Many people won't address them directly, or they won't even look at them eye to eye. They figure they are mentally handicapped as well.
>
> With unemployment the way it is, the disabled are going to be discriminated against. Employers won't admit it, but I am sure that they do.

A physically disabled informant who recently became disabled explained:

> People are funny, very funny. You are okay if you are in A-1 shape but if you are not, they wonder what is wrong with you, and they back up ten. Some people just can't accept the disability. I don't think it is that they don't care. It is just that it is new to them. Some people are uncomfortable, Bernice. It can be devastating for the disabled person.

Yet another aspect of attitudes was addressed. Over-protection was considered by two informants to be an attitude that can be very damaging and devastating. They stated:

> Over protection is a very, very dangerous thing, and sometimes society is guilty of that. Sometimes the people who are the closest to the subject are the worst offenders.

> Being overly protected can be a learned and reinforced thing and can be very damaging. My mother is the worst culprit. She is really bad for that.

Accordingly, the attitude of physically disabled adults, as well as those about them, can be critical to their development and self-concept.

Summary

The following propositions summarize the perceptions of the significant other informants:

Proposition 1: Mainstream educational programs for the physically disabled, while improving, are generally functionally and quantitatively inadequate.

Proposition 2: Specialized programs and services for the severely disabled and homebound are inadequate.

Proposition 3: Mobility, degree of disability, and capabilities should determine whether a high technology learning experience for a physically disabled adult is a regular mainstream or specialized program.

Proposition 4: A high technology learning experience for physically disabled adults should be flexible and tailored to their requirements with technical aids and attendants available as required.

Proposition 5: Learning experiences for physically disabled adults should be accredited and recognized as equivalent to regular mainstream programs.

Proposition 6: A high technology learning experience could create positive feelings in physically disabled adults.

Proposition 7: Success in learning may be more important for physically disabled adults than for the able-bodied.

Proposition 8: A high technology learning experience may be of value to physically disabled adult relative to increased independence, an improved assessment of disabilities in formation of realistic goals, and assistance in performance of physical tasks.

Proposition 9: A worsening disability and the ability to perform functions previously not possible may prompt a physically disabled adult to attend a high technology learning experience.

Proposition 10: While physical, psychological, and social barriers to attending a high technology learning experience have declined for physically disabled adults, they still exist.

Proposition 11: Physically disabled adults are prepared to do what is necessary for attendance at a high technology learning experience, i.e. attain prerequisites, relocate, acquire equipment, and take out a student loan.

Proposition 12: Success for physically disabled adults in a high technology learning experiences could depend on determination, motivation, and positive self feelings.

Proposition 13: The more severe the disability, the greater are the physical changes and instructional flexibility required.

Proposition 14: High technology learning experiences for physically disabled adults should include career planning, screening, a broad and varied curriculum, flexible instructional timelines, and be an integral part of a mainstream campus.

Proposition 15: Regular mainstream programs should be the first choice for physically disabled adults attending a high technology learning experience.

Proposition 16: In order to accommodate the physically disabled, mainstream programs must be accessible, adaptable, and flexible in terms of time frames and instructional methodology, and oriented to acceptance and understanding.

Proposition 17: The requirements of physically disabled adults are diverse because of the diversity in the nature and severity of their disabilities.

Proposition 18: Specialized programs and services for physically disabled adults should be integrated under a special unit or division of mainstream campus.

Proposition 19: Sheltered workshops are required for some physically disabled adults and should be affiliated with a special unit or division of a mainstream campus.

Proposition 20: The homebound urgently require programs and services which should be affiliated with a special unit or division of a mainstream campus.

Proposition 21: Support services for the more severely disabled should be provided only where necessary.

Proposition 22: Funding should be provided for individual physically disabled adults to remove barriers for them and for a special unit or division of a mainstream campus.

Proposition 23: Attendance at a high technology learning experience could give physically disabled adults an improved self-concept, economic independence through employment, a more rewarding social life, and greater acceptance within the community.

Proposition 24: The attitudes of physically disabled adults and of those around them are significant in developing their self-concept.

This chapter has presented the data obtained from the significant other informants in this study. Chapter VIII will present the data obtained from experts in the field of physical disability.

CHAPTER VIII

Data Presentation—Expert Informants

The purpose of this chapter is to present the data obtained from the 12 experts in the field of physical disability informants. As outlined in Chapter V, these informants consisted of four government employees, three postsecondary educational institution employees, and five association employees who provide for the needs of the physically disabled. Five informants in this cohort were physically disabled. One of the physically disabled informants was from a postsecondary educational institution and four were from associations. Because of their training and involvement and association in the work place with physically disabled adults and their particular requirements, the expert informants are in an excellent position to be informed in this field. The data are presented in an analytic fashion as it was in Chapters VI and VII and according to the eight categories that support the purpose of the study as listed in Chapter III, as well as two emerging categories relating to the influence of attitudes and an equipment resource center. Additionally, the data are arranged in an orderly fashion to present what is and what ought to be, the issues to consider when constructing a learning experience, the proposal, and lastly the benefits. The data are again presented in their original form through the abundant use of quotations to allow the data to speak for themselves. Propositional statements are used to summarize the perceptions of the informants and thereby conceptualize the problem.

Category 1. The Existence And Adequacy Of High Technology Learning Experiences For Physically Disabled Adults.

Four concerns were raised to probe the existence and adequacy of high technology learning experiences for physically disabled adults. The adequacy of generic or mainstream postsecondary educational institutions relative to the requirements of physically disabled adults are first addressed. The informants explained:

> They have certainly done an awful lot particularly since 1981 which was the year of the disabled. Most of them have a disabled student counsellor. Most of them are quite well versed now in aids for the disabled. There are a lot of volunteer note takers; there are a lot of volunteer wheelchair pushers. There are all sorts of things that are much better than they used to be. However, I can give you an example of a lady who had lost her leg to a cancerous growth, and she wanted to take the medical secretarial program at N.A.I.T., which is held on the second floor of the old H. A. Gray building which is not accessible to somebody on crutches. She couldn't get downstairs to the cafeteria, so in theory, the main campus of N.A.I.T., for example, is accessible, but that particular program was not. So a lot of advances have been made for the higher functioning disabled persons who perhaps have their act together a little bit more than some of the really injured.
>
> I think their buildings are being made accessible. Again we don't have the support services in place that will allow the person maybe to access the existing education. I am not sure that is the responsibility of the institution. The high-tech equipment isn't in the institutions at this moment as far as I know, and it is not just in the institutions; it is at home too. The person may even have the equipment in the institution but when they go home, they can't do their work at home or continue the work. There needs to be that kind of equipment available, and there needs to be the support services that will allow them access to the physical building. The support services aren't there.
>
> No, not at all. I suppose the level of adaptation would be for a paraplegic who might have trouble with a desk height or something. I am sure there would be flexibility there to make those kinds of modifications but if I told somebody I wanted an eye scanner or interfacer or I wanted a keyboard remounted and a screen remounted, I don't think those kinds of adaptations are there. I may be wrong. I speak for the two provinces that I have been actively involved in, Alberta and Newfoundland, and I think most of the programs don't have that kind of flexibility. I am sure they don't.
>
> There are a certain amount of programs that are available for handicapped. We may need to give them some more special assistance either in terms of aides or mechanical aids or whatever. Buildings are designed more and more to accommodate the handicapped. I think schools are more willing to accommodate the handicapped.

I would only say it is better than it was, but it is certainly not adequate. It is not adequate in the area of training in the use of high-tech equipment. In other words, you fit the equipment to the person too quickly. There isn't enough of the testing side of really and truly assessing what a person needs and if you take too long for that, then the new thing on the block comes along. Staffing of the whole institute is critical. The total staff needs to be sensitive to the needs and feelings of the disabled. As well, you still need some specialists.

Over the last five years there have been enormous changes to enable a variety of individuals who might not have been able to attend before to complete programs. We have dealt with individuals who are severe quadriplegics, who have virtually no movement below the neck and provided the kinds of assistance that has enabled them to complete a program whether it be law or business or whatever. So in the context of this institution, I see that a lot has been achieved, but there is still a lot that can be done, and it can be done through technology.

Mainstreaming implies that it provides sufficient support, so the person can be independent. By that token, a facility which does not provide support for the individual to meet their personal hygiene needs is not a mainstream program. It may be a physically integrated program. That is a person can access the program on a physical accessibility level, but it does not mainstream the person. It does not make them part of the total picture if they have to do something else for their personal needs. In that instance, I think many of our postsecondary institutions have not taken that on as a primary role and are inadequate.

No, I don't think they are at all. I think we have only scratched the surface when it comes to aids and those sorts of things that could be used to allow physically disabled persons to access postsecondary institutions. The technology--we haven't at all spent the dollars on technology to see what can be done to allow physically disabled persons to participate. We don't have the dollars to spend on such things as personal care attendants to allow disabled persons to come to schools and to allow them the freedom to leave their homes. I don't think there is equal access for disabled persons at schools. I mentioned technology and personal care. There are just so many different barriers or different types of disabilities, and I think many of them can be addressed if, in fact, we have the manpower and the time and the resources to address them.

I think it is getting better, but I am sure it could be better yet. I like to believe from my experience and talking to different people that probably Edmonton is one of the better areas in Canada. Edmonton is certainly a hub city for wheelchair people. You see them everywhere, and I think that we have some good action groups here who have really made a lot of things happen. So with schools, I think that things can always be better, and I think we always have to strive to better them.

No.

We started back in the sixties working with the Department of Public Works, as it was known then, in getting architecturally free buildings so

> that the disabled could use them. Most of our new postsecondary institutions are accessible by disabled people. There are a few exceptions, or within institutions, there are a few places they can't get. We are getting more equipment in the institutions where the disabled are going. We don't have adequate training for people to use the new equipment properly, and that is one of the severest drawbacks right now.
>
> No, I don't think it is. I don't think the accessibility is there. I also don't think the understanding is there by the professors and the teachers. I think a lot of teachers still have the concept that a disabled person is to be pitied and is to be given special treatment, and a disabled person is not really going to be able to learn as long as these attitudes exist. They have to be treated like anybody else, and I think that has to be changed, and we have to do a lot of public education in that area.

While much advancement in the ability to accommodate physically disabled adults has been made in the past few years in mainstream institutions, the informants perceived that they are still lacking in a number of ways. They perceived a lack of high-technology equipment as well as a lack of training in the use of such equipment. Such support services as well as aides or assistants are not generally provided. One informant suggested that wrong attitudes still prevail in mainstream programs and such attitudes are detrimental to the physically disabled adult in the learning environment. In some instances, accessibility is still not available. It can, therefore, be concluded that generic mainstream programs are not adequately meeting the needs of all physically disabled adults.

If mainstream programs are inadequate, what did the informants perceive to be the picture relative to the numbers of specialized institutions, and how well do they meet the requirements of physically disabled adults in a high technology learning experience? The informants replied:

> We really don't have any other than those dealing with the mentally retarded.
>
> Well this is where I have to comment from a Social Services point of view. I think the conventional wisdom right now is that generic services should accommodate disabled people. Everybody who graduates from high school has a right to a postsecondary slot. It is competitive; some get in and some don't. Now if you are a person with a disability and you go through that process and don't get in, then ultimately the question comes back to Social Services. It becomes a social problem, not an educational

problem. The question is what is Social Services going to do, and I think it was in that context that P.H.O.E.N.I.X. was funded. From their perspective, here was a disadvantaged group, a group that was being excluded from the mainstream of employment, so it was another effort to try and integrate people. The first choice should not be those kinds of things. The first choice should be the generic system. I think that in some ways it may slow down the process of getting generic systems to respond if Social Services comes along and works on a separate program. On the other hand, if we don't do that, then we are just another voice saying you didn't make it so tough luck. So I think it is a very difficult ethical question as to what is the appropriate role. I guess my view is that if nobody else is going to get people into a more independent state and we have the wherewithal or the approach to do that, then we owe them that opportunity, but it really shouldn't be us.

I don't know if we do have any specialized schools here for adults. I don't know if there is one which could be a good sign.

Wherever possible, I advocate an integrated approach. I think it does the regular student body a lot of good having special needs type students around. It also does the special needs students a lot of good being integrated in with the regular students.

They shouldn't be. However, schools like Glenrose are getting into postsecondary because they have 18 or 19 year olds who presumably graduated from Grade 12 who are not eligible for postsecondary, so they are creating their own. They don't have the academic skills to get into postsecondary, and they need personal care attendants, so they are having to create a program to keep the people doing something and interested. They also have a list of people who are sitting at home doing nothing. So, no, we are not meeting the needs.

My inclination is again mainstream, but there are people who can't attend them, so their needs are not being met. That is where technology could make a difference, and we aren't utilizing it.

I don't think that is the route to go. What I interpret that to mean is something like the Michigan Technical Vocational Center which is really a postsecondary training institution with a lot of technical and business programs all catering to people with some disability, and that is the route they decided to go some 30 years ago, and I can't see that being the way to go. I think rather what we have to look at is maybe some postsecondary institutions being better geared internally to look at the needs and to meet the needs. I am not saying all 28 institutions across the province, all colleges, technical institutes, should go into it. I think you have to look at it geographically; you have to look at where the population is, where the disabilities are. I think we should look at a postsecondary institution with better capabilities rather than a specialized postsecondary institution.

The problem is coming up with what training can take place. Just the fact of having a handicap often automatically excludes a lot of occupations. I

> guess the challenge isn't in setting up the school but in identifying the occupations that are practical. This needs to be done and isn't always.
>
> Specialized schools are absolutely inadequate. What do we have when one stops and thinks? We had P.H.O.E.N.I.X., and I think a reflection of people's perceptions of it was the fact that it was allowed to die with people touting the argument that what was being done there could be done in the mainstream.
>
> I would like there never to be special schools. They may need special classrooms because they are disabled to a point where they can't cope in the regular classroom, so I can see that you need some segregation within an integrated school system.
>
> I would feel we don't have enough specialized schools because there are so many grey areas. There really isn't anywhere for those students who aren't ready for N.A.I.T. to go.
>
> I do not think there should be specialized schools.

The majority of informants felt that specialized institutions were not desirable. Generally, the informants recognized a gap in services for some physically disabled adults. One informant felt the challenge was in identifying appropriate occupations for the disabled. Another suggested the problem becomes a social one in spite of the fact it should not be, and the social programs felt obligated to help out if other means were not available. So while the informants may not prefer specialized institutions per se, they did recognize the need for specialized programs and services for some physically disabled adults and, therefore, recognized an inadequacy in the educational system.

What programs are being provided for the homebound and are they adequate? The informants perceived:

> They need high-tech equipment and again if they are homebound and we don't have the funds to provide that disabled person who is homebound with equipment, then we are of no help to him. There are no funding sources at the moment.
>
> Well, in theory there are things available through distance learning through Athabasca University and other places that people can hook into. I am aware of a lot of people taking correspondence courses they don't finish. The contract with the instructor is not adequate just by the phone. It seems that the majority of learners seem to need that one to one small group environment. I recognize we are doing something, and some things are available, but I don't think we are doing enough.

No.

We are probably not doing much.

We are not doing enough there. We are not doing much, if anything, and there are some programs in New York and California that have worked with existing postsecondary institutions using bridges to access some programs or using say something along the lines of an Athabasca University concept to homebound or persons say that are in institutions like hospitals or whatever for a year or two or three. You know, there is lots that could be done right there, and that is pretty well an area that has been completely ignored--virtually ignored. And yet the traditional correspondence method is not going to work.

My inclination is again to the mainstream idea so that even individuals who are homebound have the opportunity to maybe get out of their homes and do whatever in a social context--in an environment that is normalized as much as possible, but there are some who simply cannot. That is where technology can come in, and right now not much is being done.

I am not aware of anything for the homebound, but there may be something. I know the university has something, for example, that they call Plato, and they have some programs which are aimed at people who are homebound. They are expensive, and I don't know who designed them. They have a couple, one on independent living and one on life skills, but I haven't seen the content, so I really can't comment.

I don't think we are doing anywhere near enough. Hooking people up with modems and computer terminals and stuff like that--I don't think that has been explored at all. It seems very feasible, but we haven't spent the dollars or the time exploring those avenues.

We probably haven't done much. If we have something, it certainly wouldn't hurt to do a better job of marketing it.

High tech was the direction P.H.O.E.N.I.X. took. One of the directions we would like to promote is using more high tech options to allow homebound people to be more independent. As full a participation as possible in citizenship should be allowed for.

We have got an experiment going now with the Canadian Paraplegic Association, and we are allowing a homebound person to take a computer programing course by computer from a program, which is in Winnipeg, Manitoba. He hopes then to operate a business from his home using a computer. Normally we don't deal with people who can't go to an institution, so this is something new. Our problem is an agency spending money for people to undertake training, and how do you follow up on what they are doing, or is the equipment just sitting there doing nothing? It poses a problem for an operation such as ours.

No, I think it is something that we really haven't even begun to develop in Alberta. You know, it isn't that long ago that if you were homebound or even if you were in a wheelchair, the general perception was that you

> couldn't do anything. You were to be pitied, and I think that with the initiatives taken by places like Athabasca University that this is certainly going to help a lot of disabled people. The problem with that is a degree from Athabasca University may not be recognized. Say if you want to go on to the University of Alberta for a master's degree, will they recognize the degree from Athabasca University? I have my doubts.

The informants were generally aware of some activity involved in providing educational services to the homebound, but they recognized this to be limited and inadequate. High-technology equipment is not being used to its potential, and funding sources for such equipment are inadequate or non-existent. Three informants recognized the work Athabasca University is pioneering in this field, however limited. A government sponsored training program utilizing high technology is also being pioneered. The informants agreed that much more should be done to address the needs of homebound individuals relative to learning experiences.

The question, then, becomes one of what characteristics or aspects of a particular physically disabled adult determines the appropriateness of a particular learning experience for that individual? The informants suggested:

> You have to have a place where the person can get into, can get out of, and "You have to have people geared to addressing the ability of the individual, instead of the disability," to coin a phrase.
>
> The individual really decides. We can counsel them as to what is available related to their background. It is a personal decision what they want to do. Some people with extreme disabilities do attend a postsecondary institution, and other people with lesser disabilities seem to feel that that is too much. However, there are limitations for some people as to what they can do. Their life support systems are such that they just can't leave their room to go to an institution. Other people have an appearance which makes it very awkward in a postsecondary institution, and the institution itself would probably have reservations about having them as students.
>
> In my view, the situation would be determined by a variety of things--the access, the choice, like what are the options, what is the match between what the person wants and what the person is trying to achieve, and what the program offers? So it is a variety of things.
>
> I think accessibility to the building. Also I think its location would have some bearing. I think for something to be more central and for parking. I think parking is very important. Easy access to transportation for it sort of encompasses a number of things but is much related to the same thing.

I feel that the general approach now is to look at the disability and see if it precludes them from participating in the academic setting whereas it should be the other way around. If we had the time and resources, it should be turned around, and we should look at the person's abilities and try and adapt the academic environment to suit the abilities.

The same as for anybody else--interests, dreams, abilities--just as it would be for any person coming out of Grade 12. It would be exactly the same. Ideally the disability shouldn't come into it.

How readily an environment can be adapted to enable a person to participate within a reasonable cost framework, and there has to be a balance. We are very fortunate, I think, in the western world in that we have an incredibly positive attitude about what can be done. There are many things that keep happening that you wouldn't have expected years ago, so I think we shouldn't stop dreaming about changing environments to allow people to participate.

The appropriateness would be what is the physically disabled adult's particular needs--the degree of mobility, the degree of personal support care required, their own particular interest, their own ability in terms of what they have between their ears. The Association of Handicapped Student Service Personnel, which is an organization to which I belong and which the strongest representation from Canada is in Alberta, strongly endorses that we have to get the disabled person to choose first the program that is best for them, and then you look at the institutions that can deliver it as opposed to the other way around. Too often in Alberta, students are forced to shop around in institutions to see first of all what the support services are, and then they decide what program they are going to take, and to me it has got to be the other way around. You have got to choose something that is suited to you, and then you look at where you can achieve it.

A little bit of everything--their ability, motivation, attitude, social supports, family, and support situation--just the whole environment around them, and I guess it is hard to pinpoint it to a specific thing. Again I don't see any difference between a physically disabled person and anyone we deal with. People run into the same problems in any type of training program--frustration, stress--and their success depends on what factors they have internally and externally to support them through that. One person will make it through, and another person will quit. I say it is the total individual.

Some of the factors that I would think would be important would be first of all location and accessibility. Parking is a factor. The range of possibilities in terms of curriculum is a factor. Are people being channeled there because that is the only alternative they have, or do they have a wide range of options in terms of what they could do?

I think career planning would be a big guideline, that sorting out of options of occupational opportunities matched with skills and then finding out which institutions offer programs, that will meet that individual's needs. I think a comparison of the course content from each institution

> and also a good look at placement statistics is appropriate. I think basically course content and the ability of that person to be successful in that environment--What sort of aids does the student need? Are they available? Can the course be lengthened for that student if necessary? Can they do it in five semesters instead of four--that sort of thing.
>
> The assessment of the person's ability to do the program, and that might come from the person themselves. If, for example, you have a disability such as M.S.--fatigue is a big problem with people who have M.S. They, themselves, know what they are physically and emotionally capable of doing, so they should be able to access integrated programs or homebound programs dependent on what they know they can do. I think it is good to have places like Athabasca where you can do home study.

A number of aspects were addressed by the informants with respect to the appropriateness of a particular learning experience for a particular physically disabled adult. The concept that abilities rather than disabilities should be addressed in this process was emphasized. Also the need for the individual to decide what they want in terms of a learning experience should be first investigated, and then an effort made to locate an institution that is able to offer such a program and accommodate their needs. One informant stressed that the respective individuals are best able to determine the kind of learning experience that would suit them relative to their emotional and physical capabilities. Career planning was also stressed and a shopping around for an institution to best meet the individual's needs. Ability, motivation, and attitude on the part of the individual were mentioned. Accessibility, location, parking, transportation, and support services were mentioned relative to the institution. In the overall, abilities, not disabilities, should be addressed. Career planning relative to the characteristics of the individual and those of the institution should be pursued.

Category 2. The Nature Of Special Requirements For Physically Disabled Adults In A High Technology Learning Experience.

Seven concerns were discussed to probe the nature of special requirements for physically disabled adults in a high technology learning experience. The informants were asked how they perceived a high technology learning experience meeting the needs of physically disabled adults as compared to other learning experiences they had encountered. They were reminded that the reference to high technology could be either a high technology program per se or a course in an unrelated field using high technology as a facilitator. The informants replied:

> I guess if it is high tech and you have got all the equipment there, that would allow them to complete the program; then that is going to be special for a lot of people. Right now if they don't have the money to buy the high-tech equipment, they may be left back in a lot of instances in school. So I think if you have a place like this where they have access to high-tech equipment which will allow them to keep up, then I think we are going to see more successes and more encouragement to continue and finish the programs.
>
> Apart from the obvious benefit of high tech, I feel group dynamics occur spontaneously in a specialized facility. Things like sharing and losing the feeling of isolation that I am the only one apart from when I was in the hospital are of particular value.
>
> Sometimes I think I have tunnel vision when it comes to high technology and disabled people. It is just so incredible and unlimited. I see the computer and its potential and when I say computer technology, I don't just mean a keyboard and a screen but the whole broad issue of computer technology. The information systems and things like that they can utilize are unlimited for home employment and training. I see environmental kinds of assistant devices where a person can tend to be relatively independent in his own environment because of that same technology.
>
> It should make them competitive.
>
> The availability of technical aids would be greater than in a traditional setting. There would be an opportunity for training to use high tech at a higher level than what is currently available. So, therefore, it would be an enhancement.
>
> It would be the continuity and the support and that sense of assurance that when there is a problem, there might be a solution through high tech as well as sensitivity on the part of instructional personnel.
>
> High tech has created more independence. At the same time, it has created a dependence on high tech, and not everybody has the aptitude or interest in computers but is forced into it because there aren't a lot of alternatives.
>
> Well, I think high-tech equipment can certainly help all students, all individuals. It certainly, I think, can help a physically disabled individual even more than an able-bodied person. An able-bodied person can participate in the classroom without high-tech equipment. In many cases, it allows the disabled person to participate.
>
> Aside from high tech as a facilitator, flexibility would probably have to be another aspect of a program designed for the physically disabled.

> High tech can certainly be utilized. It is needed more by some than others. For example, for the non-verbal person with cerebral palsy in a normal intelligence range who wants to go to university, high tech could be very significant for that individual.
>
> The value of high tech is that of facilitator in other courses. But we don't want to train all physically disabled people as computer programers. That can create a problem if we ghetto people because five years down the line unless you have a doctorate, you probably won't be doing computer programing. It is going to be a lost art because the next couple of generations of equipment will make computer programing obsolete as we know it now and so there is a difficulty in channeling people just in a certain kind of program.
>
> The physically disabled have to have the proper equipment to facilitate learning which may be a computer or an electric wheelchair, and all this has to be determined on the individual needs and strength of the individual. We have to ensure the accessibility of our facilities.

All informants were of the opinion that a high technology learning experience would serve as a facilitator in the learning environment of the physically disabled, and they recognized a need for such equipment. One informant suggested that while high technology allowed the physically disabled to often be independent, it also created a dependence. The informants also recognized a need for flexibility and support in the learning environment of the physically disabled.

What would be particularly unique about a high technology learning experience designed for physically disabled adults? The informants were asked to outline the significant feature or characteristic of such a learning experience as they perceived it. They replied:

> Proper equipment and accessibility.
>
> The unique feature would be flexibility.
>
> High-tech equipment would be significant.
>
> Flexibility. There may be patterns in their life that takes them away from a class as opposed to an able-bodied person. Physically disabled individuals are more prone to come down with medical problems that interrupt their learning. I think that is where you would have to be flexible, and in some cases, that is maybe where the course might have to be taken over a longer period of time.

> High-tech equipment is certainly something to take into consideration.
>
> The ability to be more independent through high tech.
>
> For the individuals I work with in a mainstream setting, there is a strong need to blend in and not be considered different in any way. For the more severely disabled, there might be some advantage to being in a program where they see there are other individuals who are similarly disadvantaged and seeing them succeed as role models or whatever. That could be the unique aspect.
>
> Keeping high-tech equipment current so it is not only putting them in the environment, but it is the keeping up that I am concerned about. Making sure the outcome is achievable for the individual.
>
> The flexibility in terms of interfacing with the individual on a very individualistic basis would be extremely important.
>
> The physically disabled adult student would be in a very understanding environment. There is a caution to that too in that a dependency can build unintentionally.
>
> Flexibility. I think if you had high-tech equipment that in itself would be unique.

Aside from the high-technology aspect, flexibility was highly rated by the expert informants as a desirable unique feature of a learning experience particularly designed for physically disabled adults. An understanding environment and achievable goals were also considered to be unique characteristics of such an environment. The ability of the physically disabled adult to become dependent was also considered. The need to remain current relative to high-technology equipment was also mentioned. Accessibility was also listed as a unique feature. Nonetheless, high technology and flexibility in the overall were considered by the informants to be the unique features of such a learning experience.

It is important that a high technology learning experience designed for physically disabled adults be an accredited, recognized one? The informants answered:

> -- I think so. That was one of my problems with the P.H.O.E.N.I.X. program. It wasn't accredited. So I think it has to be in order to promote the idea and if you ever get funding, it has got to be accredited.
>
> I think so because of comparative employment standards.

> Oh, absolutely.
>
> Yes, some type of accreditation.
>
> Well, I think if it is tied to regular environments, it has to be. If it is not tied to a regular environment, then it is better if it is accredited in some way although that means so many things. There is some real false accreditation going on. If it is accredited, basically what that means to me and, therefore, my answer is a, yes, is that it is very portable. Your training must be portable in the marketplace and very portable in the sense of advanced standing in other institutions.
>
> If the aim of the program is to give them a career, if the aim of the program is to help them achieve accreditation in some existing program, then there is no question about it.
>
> Yes, very.
>
> Yes, I think it is very important that the school be accredited. I think that was a shortfall of P.H.O.E.N.I.X. in that they didn't get their accreditation from Advanced Education. That is probably one of the things that led to their demise. Students weren't able to get financial support from agencies like VRDP because they weren't going to an accredited institution. They are out there competing with people who have got diplomas from N.A.I.T. and Grant MacEwan, and who are you going to hire?
>
> Yes, I think it should.
>
> There is no vehicle for services developed outside educational institutions to be accredited. I don't think U of A or N.A.I.T. or S.A.I.T. should put on programs for the disabled that aren't accredited or meet the same kind of standards as all their other programs meet. The ideal would be that people are integrated into generic systems. P.H.O.E.N.I.X. wasn't a school; it was a vocational training center geared to preparation for employment. While there was an accreditation base, it was not curriculum-based accreditation.
>
> Since my preference is mainstreaming, they should have the same credit and pass the same standards as anyone else. Now if you have a specialized program for a certain group of disabled people, then there should be certification.
>
> Oh, I think so. I believe that they are not doing anything that is that different from anybody else except for the special equipment that is required to facilitate the learning experience, and everybody else receives credit for a job well done and if a disabled person passes, completes his course, then, of course, it goes without saying he should receive credit for it.

The informants were of one accord in their belief that a high technology learning experience designed for physically disabled adults should be an accredited one. If an individual is to be competitive in the labor market, accreditation is deemed to be essential. Lack of accreditation was recognized to be a deficiency with P.H.O.E.N.I.X. Although, as pointed out by one informant, P.H.O.E.N.I.X. was a vocational training center, it could not have been accredited as the generic postsecondary educational institutions are. Another informant felt P.H.O.E.N.I.X. should have been registered under Advanced Education so that its graduates could have been competitive with graduates of the generic systems. Mainstreaming was specifically mentioned by three informants as their preference, and therefore accreditation would be automatic.

Credentials, then, go hand in hand with accreditation. Should meaningful credentials be issued in conjunction with accreditation by a high technology learning experience designed for physically disabled adults? Many of the informants briefly replied, "Very important," "Certainly," and "Very." Four informants simply said, "Yes." Five informants elaborated:

> Credentials are important, and one of the biggest barriers to people who have some hybrid kind of qualifications is that as a disabled person; they have two strikes going against them, not just one. They are not just disabled, but they are disabled with some kind of qualifications that tend to tell people that it is not as meaningful as if they got it from an accredited institution. I think they are very important. Their certificate should be a recognized and bona fide one. I think it is a waste of time for disabled people to take mickey mouse courses.

> Yes, it must be recognized by potential employers. In designing a program, I would say it is essential to go with the concept of involving employers to ensure the program is suitable. Largely what N.A.I.T. has done since its inception and that is it always involves people from the community, employers.

> Yes. The proof of that is--look at the money that we are pouring in right now, not just with physically disabled persons but others as well, in a lot of job entry programs and job skill training programs, and the message we are getting more and more is that there aren't a lot of jobs at the end of the tunnel. In other words, the participating employer has taken their percentage and if at the end of the course the guy or gal doesn't stay, they don't have skills that are that portable to another employer.

> Yes, and I think for those who can't mainstream, it would probably be very meaningful for them to have something that shows very difficult steps have been completed.

> If we are looking at something that is anything other than an interest-type program, if the program is one which the general public would access as a career-oriented program, then their should be credentials as anyone else would receive.

Credentials are, therefore, deemed by the expert informants to be an essential part of a learning experience designed for physically disabled adults. Such credentials should not be hybrid ones but meaningful, portable ones as received by a graduate of a generic postsecondary educational institution. One informant suggested that in the development of accredited programs, employers' advice be sought so that credentials issued would be meaningful.

Generally speaking, how would success in a high technology learning experience make a physically disabled adult feel? Would it be a worthwhile, meaningful undertaking for them? The informants suggested:

> Oh, I think it would make them feel very positive, naturally. Any time a person is successful in something, you are going to get all the normal feelings of self-satisfaction and increased self-confidence, increased self-worth.
>
> I guess it would do what it makes all of us do when we are successful. When we have accomplished something, it would give us a new sense of self-worth. I look at our client population who have come through a process in most instances of devaluation of themselves, and so I see success in that kind of a venture, doing all kinds of good things in terms of rebuilding self-worth and self-confidence and putting them in the competitive mode again where they would want to go out and seek employment, but otherwise I think all the good things that any of us get from succeeding at whatever it is that we do.
>
> Anytime any of us achieves some sort of success, it makes us feel good. It makes us feel that we can go on to something else and succeed, and it also makes us less afraid of taking a risk and trying something. It is going to be a positive feeling.
>
> The same as it would make anyone else feel, only more so.
>
> Just like us, wonderful.
>
> Well it should increase their self-esteem if they have got skills that are truly valued in the work place. Their skills must be equitable, and that is how you keep the person's self-esteem up.

> I would hope it would make them feel a heck of a lot better about themselves. Focusing on the "I can do" rather than the "I cannot do."
>
> I think success for physically disabled people certainly has spinoffs and certainly can make them happier individuals--healthier psychologically.
>
> It would improve their self-esteem.
>
> I think there is ample evidence to suggest that many of them want to be productive. Many of them are very upset that the unemployment rate for physically disabled people is in the 80 to 90 percent range whereas for the rest of us, we think it is bad enough at 11 percent.
>
> They would feel good about it as you and I would feel.
>
> Just like anybody else that they did it and they succeeded.

While this question was a philosophical one (direct benefits to a high technology learning experience will be addressed later in this chapter), the informants felt that physically disabled adults would feel as anyone else would feel having succeeded in a given endeavour. Two informants felt specifically that such success may even be more rewarding for physically disabled adults since they have often focused on their devalue rather than their value. The informants unanimously concluded that it would be a positive, upbuilding experience.

While success in an endeavour is important to everyone and is a part of humanism, might it be of even more importance to those who are physically disabled? Might they be more devastated by failure than able-bodied individuals? The informants perceived:

> No, they are individuals like everybody else, and I would think they would have the same variety of reactions as a non-disabled person. Some will fall very hard, and some will swing with the problem, and being in the helping profession, there is one thing I think we should be sure of is that we don't set people up for failure. We must be realistic.
>
> Well, the easy answer is to say it is individual. If physically disabled people fall harder than the so-called normal people, it is because the medical profession which they have gone through in their adjustment process has made them dependent. It hasn't allowed them to take a risk, hasn't allowed them to learn from their mistakes, and has really sheltered them, and to me this is part of the adjustment process. A disabled person has to be treated the same as everybody else. They are to be understood, and they have to be allowed to take that risk, and they have to be allowed

to learn from making a mistake the same as everybody else and if they are allowed what I consider a right, then, no, they are not going to fall harder than anybody else. They will be entirely individual.

I don't know that you can generalize on that one. I think the generalization is probably that persons with disabilities do not have the same opportunity to try things and either succeed or fail. They get blocked more frequently than a person who doesn't have an obvious disability, and I guess the other thing is that a lot of it would have to do with the track record or experience of the individual. If a person has had a series of successes and confronts failure, it is less traumatic than if they have had nothing but failures, and I think that goes for a person whether they have a disability or not.

I would say it is probably individual, but I don't think they fall harder because I think they have already learned to cope with their physical disability, and so they know how to persevere probably a little bit more than other people. I would probably say that they would persevere more.

Physically disabled persons can fail, and in many instances, they don't have to face the same consequences perhaps as their able-bodied peers. The supports are there, and they are given another chance in many cases.

I feel it is harder, except for the congenitally disabled where people have never known anything different. A physically disabled adult who has acquired a physical disability has lost a lot of things in the way of self-respect, self-esteem, confidence--generally relationships have broken up, their family situation is not what it was, and so they have had far more losses than you and I have had. I feel failure is worse for them and makes them question why they should work when they can stay home on pensions.

That's a good question. That has been an excuse for not having more physically disabled in regular or mainstream institutions. What if we give them that program, and then they don't get employed; or what if we let them in, and they fail in the course; they will feel terrible and things like that. I think that is a personality factor. Some would fall harder aside from their disability. They focus right back on their disability time and time again for failures in their life--failures with marriage, failures with their interrelationships, failure with the job market. They keep coming back to that, and they use it and that person would have failed anyway. And we use it too. Then there are those who call themselves super crips where their disability pushes them beyond their limits. Then we haven't talked about the congenitally disabled, and it is a function more of their environment--the degree they have been sheltered, the degree they have been ostracized, the degree they have been set aside. Those are all contributing factors. We cannot generalize and say the physically disabled fall harder, or they fall softer. We have to look at the individual.

It is hard to generalize. It often depends on the family situation and how they react to the disability. They often hear that they would not be able to make it say at university, so the need to overcome that or prove them wrong is really there in many cases. Also for those who are more recently

> injured or injured later in life, the need to compensate for that sudden loss of physical ability and to bring themselves back to being useful members of society puts a lot of pressure on them.
>
> That is going to come in a two-prong answer. First off you have to look at two different types of disabling conditions. One is the person who was born with a disability, and the other, the person who becomes disabled as a result of illness or injury. A person who is born disabled has had to struggle all their life, so they don't look at it as being anything different than what they have already gone through in many instances. Of course, everyone is different, and that may not always be the case. I think people who become disabled set out to prove sometimes that they are as good as they ever were, and so they take setbacks harder without reflecting that had this setback occurred before they were disabled, they could have coped with it.
>
> It is an individual thing. I think disabled persons should be allowed to take a chance and risk failure the same as anybody else. If you are disabled from birth and you have had a family that over-protected you and never allowed you to experience the risk of failure, then you are naturally going to find it very difficult if you experience something you fail in. So I believe they may feel it harder particularly if they have been over-protected and were never allowed that freedom; but if you are disabled later in life or you have been brought up in a support system where you have been allowed to take a chance, I don't think it is any harder for you to fail than it is for anybody else out there.
>
> An interesting question. I don't think they fall any harder if they fail. I have never given much thought as to whether or not they develop some resilience in terms of the adjustment process, and again that depends on the disability, I suppose. I guess the first couple of years after the injury, it is one fall after the other, and I don't know if they develop some sense of resistance through that process or not. I have never judged that to be so. I say people have personalities and if they happen to have been disabled at some point in their life, they had a personality before, and they have the same one after. We often hear Vocational Rehab Services say they don't want to fund a person because they don't think they will succeed, and they don't need another failure. I believe that physically disabled people have the rights to risks and have the right to failure just like everybody else.
>
> That is an individual thing. A lot depends on the person--their motivation, their attitude, their expectations of themselves. It could also be environmental.

Generally, the informants perceived that it is very difficult to generalize as to whether failure is more devastating for physically disabled adults than for able-bodied persons. The majority of informants suggested that ability to cope with failure was an individual thing while another informant suggested that was merely an easy answer and an oversimplification. Three informants addressed the difference between those who were congenitally disabled and those who became disabled as a result of injury or illness. These informants felt that those who became disabled later in life had more difficulty in coping with failure than those who had been disabled since birth and know nothing else. Environment was also generally addressed as a factor in helping or hindering the individual to cope with failure. An overly-protective environment, where the individual was not allowed to risk failure, can be devastating. Of those informants who felt the problem to be more than an individual one, three suggested physically disabled adults would not fall harder if they failed than their able-bodied peers while one informant felt they would. It would have to be concluded that the informants felt the ability to cope with failure to be an individual thing which may be a result of environmental factors.

What are the objectives or expected outcomes of a high technology learning experience designed for physically disabled adults? In what ways might such a learning experience prepare physically disabled adults for the future? The informants observed:

> Employment is first and foremost. I know I am bypassing and probably shouldn't be some of the other training that you may be looking at such as life skills training and independent living, but I am focusing on job training. There may be needs for some high-tech training experiences to enable the person to live independently where they haven't been able to in the past.
>
> Financial independence is a very worthy and very elevated outcome or goal. I suppose in terms of high technology, it might put them at the leading edge in that so many still aren't prepared for the future in terms of high technology and what is going to happen in our society in the next 20 years. More than others, the disabled may have explored all the potential of high technology. Social skills are terribly important too.
>
> To broaden their knowledge base, to give them more skills so that they are marketable at the end of this program. If you want a job, I think it is your responsibility to broaden your knowledge and experience base so that you are someone that people want to employ. So I guess in terms of employment, I think it would give people more skills to offer an employer. It would also help them to relate to other people.
>
> The same as for anybody else. Either to learn something academically for the sake of learning it or to learn something that will assist them in future career moves--employment.

It would mean maybe for the first time looking with some hope at a life-style that is very different from what they have been doing. Then seeing yourself learn something or become good at something will carry inherent satisfaction. Then eventually there is the possibility of work and the self-esteem building kinds of things.

High on the list has got to be job entry skills, but it need not only be that. The fundamental objective is to make more people feel that they are employable and that they can make a greater contribution.

The objective should be to train individuals to the maximum of their potential so that they may become at least partially financially independent.

Most funding is available only if it is employment related or job related. I personally feel that it should be broader in that many disabled persons, severely physically disabled, are not pursuing education solely for the purpose of employment. A lot of things like independence and self-fulfillment come into play rather than just employment. Unfortunately, access to many of our programs is restricted because they are geared for those who have as their goal employment rather than a better life-style. I see the spinoff into the whole realm of life rather than just into the employment area though many of the programs will state that their focus is solely employment or vocational. The spinoffs are inevitable.

The objective would be to provide the same services you offer able-bodied people to the disabled.

The bottom line is independence and self-reliance. There are a lot of things that can be provided to remove barriers. Things like money management may be needed. Very expensive adaptations may be required, and I don't think that is a problem; it is an obligation.

I think the core objective is to help disabled people and provide the wherewithal for disabled people to be trained in a vocation of their choice—the same as any other person in our society, and you have got to look at it from two ways. One is going to be people coming out of school and the other is going to be people who are going to require retraining because of their disability. I think one of the programs that we are missing in this province is adjustment counselling. How do you adjust to an altered life-style? How do you come to terms that you can't play hockey anymore? These are things that disabled people need help with, and you can't do it in what I call the herd concept. You have to do it based on individual needs and the individuality of the person. So the program has to be designed to meet the needs of the individual, or it won't work. We are going to have a bunch of dependent people if we carry on the way we are.

My job is working to get them into full-time employment, so I am oriented that way. Current funding is all career oriented.

The majority of informants referred to either employment or independence as the primary objective of a learning experience designed for physically disabled adults. Independence was deemed to be essential to improve the self-concept of the individual. One informant suggested that the objective of a learning experience for physically disabled adults would be the same as that designed for able-bodied persons. This would no doubt, therefore, also include independence and employment. Two informants advised that funding is only provided for those persons interested in a career. One of these informants suggested that funding should be expanded to include such things as self-fulfillment. Another informant felt learning experiences developed for physically disabled adults should be individualized to meet the needs of each person. This same informant suggested that adjustment counselling, to enable the individual to adjust to an altered life-style because of disability, should be provided. Generally, while a broader, holistic approach was felt to be beneficial, the bottom line and core objective was to enable the individual to be employable.

Category 3. The Rationale That Would Prompt A Physically Disabled Adult To Undertake A High Technology Learning Experience.

Three concerns were addressed as probes to ascertain the rationale that would prompt a physically disabled adult to undertake a high technology learning experience. In developing a high technology learning experience for physically disabled adults, it is beneficial to understand why they would undertake such an experience in order to be able to adequately plan and develop such a program. What conditions might prompt physically disabled adults to enter a high technology learning experience? Might the worsening of their disability be a reason? The informants reasoned:

> Yes, progressive diseases; we are getting more of these people now looking at retraining. They have led a very physical life, and it is not going to be possible down the road.
>
> Boy, that is going to depend so much on the individual. Some people are going to become--it is going to cause them to go on a real downer, and all

they are going to want to do is sit and feel sorry for themselves. Other people are going to want to go back to school. Disabled people--you can't generalize about them. I know in my case I would want to go back to school and get myself trained in another area. In someone else's case, they might not want to do that.

I don't have to think about that. I know the answer to that. There are people who do that. People do take note of progressive disability, and people do make significant career shifts because of that. They anticipate what they will be able to do and make shifts to accommodate that. There is no question about that.

Obviously the person who can no longer continue to do what they are doing is going to give some thought to retraining. Maybe we, in society, need to encourage them and suggest that they try something and try to relate it closely to what they were doing before.

From what I have seen here people tend to put that off. They don't deal with progressive disabilities until the time comes where they are forced to change occupations because physically they can't handle it anymore. Then at that point they do, yes.

I think so provided that person is ready and willing and open to look at that and is very realistic about their potential.

Some people do that with disabilities, but there are studies too that show that time and time again people put off the inevitable until the last possible minute. In other words, if our sight is failing, most people don't begin to learn Braille when they need it. We are far more motivated when we need it.

If a person is in a work role or work setting where they are doing something that is very cerebral, but it also involves some physical ability and the physical ability declines, I would assume they would want to continue doing the cerebral stuff, and that is where the high tech would come in. Technology can do something to maybe look for a parallel that is reasonably close.

Yes. Again you have to get back to career planning and sometimes career planning only seems to be available once in your life, and that is when you are first starting out.

I have found that people with M.S. will fight to the "enth" degree not to use specialized equipment until sometimes it is too late. I have seen this with my mother who has M.S. They almost wait until it is too late to take on the specialized equipment they need, and they are likely not to take the training when they should. It would be nice if they would recognize that possibly down the road this is going to be a problem.

I never thought about it in terms of the worsening of the disability. That is interesting; I am sure they would. I haven't given that much thought as the disability I work with is somewhat chronic and somewhat stable. I suppose it would certainly be a factor.

> I would think that it would probably be an incentive, but I haven't really seen it happen. We tend to leave things until they are a problem.

While the informants felt that the worsening of a disability would be an incentive to undertake a high technology learning experience, the majority of informants cautioned that individuals generally procrastinate and put off the inevitable until it is absolutely necessary to take some measures. At that point, then, individuals will take steps to accommodate their disability to the degree possible through retraining. One informant stated that such a decision is very individualistic. Nonetheless, the informants generally felt the worsening of disability would prompt an individual to compensate through attendance at a high technology learning experience.

Would economic climate, particularly a worsening one, play a role in encouraging physically disabled adults to attend a high technology learning experience? The informants proposed:

> Certainly, yes, the economic climate will be a factor. Ours is a capitalistic society; there is no question. We are bombarded with things to buy, and anybody seeing that desires those things, and one way of getting those things is through working.
>
> Of course. For lots of people high technology would open up possibilities where before they were not available to them.
>
> It definitely does. We see that right now with the provision of equipment—high tech equipment too. When I came to this association three years ago, I would have a client request for an environmental control, and I could likely tell that person I would have it for them in two months using the funds in the community. Now it is sometimes a year before I can raise the funds, and I have had a couple of instances in the last year where the client died before I could even get the equipment for them because the money just isn't there. So economics plays a big part in that particularly when you are talking high tech because people see it as a luxury; they don't see it as a basic need for some people.
>
> Yes, definitely. They are eligible once for VRDP funding. But any student who goes to university is eligible for as many student loans as they want. Disabled people quite often don't qualify for student loans because the lending institutions don't know when they will be able to pay it back. The institutions have a negative concept of the individual ever finding a job when they are done.

> Yes, disabled people may lose a job because of cutbacks, and they might be on the bottom of the totem pole because they are not as efficient, and they have to look for another resource, another job. Perhaps if good old technology were there, something else could be worked out.
>
> Yes, I think, yes, and that is what is happening right now. With the downturn, there are more looking to training right now because there were more occupations that could be learned on the job before--more what we would call marginal employment situations that required no additional training. Today because of the downturn, a lot of people want some training and yet right now, institutions like ours have to be very honest and let them know there is less in the way of job guarantees than had they taken the training three or four years ago.
>
> Well, it certainly might and whereas the individual is able to make a choice themselves about what they feel they can do, I do feel that the economic climate dictates their employment potential. I do feel that one has to look at the global--the Edmonton economy, the Alberta economy, and the national economy to pick an area where employment is likely.
>
> I think economic climate affects the physically disabled probably equally. Many physically disabled work in the marginal labour markets that seem to get hit as hard as the regular in tough economic times. It is then that many people decide to take some retraining.
>
> Yes, but I also think that if a physically disabled person wants to pursue their education, dollars through government agencies and what not are there to help them probably more so than for the able-bodied persons.
>
> I think that physically disabled people are not any different than the general population in the sense that when the number of jobs constrict, people begin to think they need more education. They feel they have to be better prepared in order to compete for the existing jobs, or they need to change direction and get retooled for a new job. But I think that maybe the disabled individual is less impacted by the economy than the non-disabled person because even with a really buoyant economy, the chances of a physically disabled person not getting in are pretty high and so it much more becomes an individual success.
>
> Sure it is a factor. The same as it is for everybody else. I think in society today a lot of people are having to go back to school for retraining, and I think the disabled are certainly no different in that respect. They, along with everyone else, need to look at where the jobs are going to be before they go back for retraining. We have got too many disabled people who are psychologists and social workers.
>
> I think if they become unemployed, then I think they look at it more seriously as an alternative.

All informants perceived that economic climate, and more particularly a downturn in the economy as exists at the time of this research, would play a role in physically disabled adults attending a high technology learning experience. High technology was viewed by two informants as an avenue for physically disabled adults to be more viable in the job market in tough economic times. One informant felt physically disabled adults were less affected by the economy because they were more apt to get government loans for retraining than able-bodied individuals whereas another informant felt they would be less impacted than able-bodied persons because they have never been that successful in the job market whether it is good or bad. A number of informants stressed that the physically disabled were really no different than anyone else in difficult economic times where retraining often becomes a necessity for many individuals. Generally, there can be no question that the economy plays a part in physically disabled adults seeking entry into a high technology learning experience.

The proliferation of high technology has created many new job classifications and also has provided an avenue for physically disabled adults to perform functions or engage in activities previously not possible for them. Would such opportunities be an incentive for physically disabled adults to engage in a high technology learning experience? The informants pointed out:

> Oh, boy, I sure do. Things like graphic arts, for instance, like a high lesion quadriplegic is going to be able to do that with a computer whereas before he might have had the talent, but he couldn't get his arms to work, and so, sure, computerization is just going to open up so many doors.
>
> Oh, sure, yes, I would think so. That is if the employment barrier is the ability to perform tasks and if technology helps overcome that barrier, then it has got to help.
>
> Yes, I think it would for some people.
>
> Certainly, much.
>
> I think so, yes, I definitely think so. If people have one hand that can work or a digit or a hook or a mouthstick, they can use it on the keyboard.
>
> Yes, that is the potential really of harnessing the up-to-date kinds of technology. It affects physical limitations.
>
> Yes, yes.

> It certainly could be. For example, we had a couple of P.H.O.E.N.I.X. students through here, and they got a jump on other students because they already had computer training.
>
> I think so. I see more and more disabled persons going towards the fields of high tech. A lot of people are looking towards jobs that use computers, so I would say they are already gearing for high tech. They also realize that that is the area we are drifting towards as a populace, and I think a lot of people are recognizing that.
>
> I think that is very valid. It would turn people on because it gives them possibilities they never had before.
>
> Yes, I think it would. The creation of jobs that they can do would be an incentive.
>
> No, I don't think they would look at it that way. No, I think people try to do what they are familiar with doing until they come up to the end, and they realize that they are not going to be able to do it any longer. A lot of us don't try to change. It is sort of a trauma for us to undertake changes. We are much more comfortable doing what we know we can do the way we did it for 20 years.

All but one of the informants perceived that the development of new job classifications or the ability to perform physical functions previously not possible before the advent of high technology would be an incentive for physically disabled adults to attend a high technology learning experience. The one dissenting informant suggested that people do not like to make changes and feel most comfortable doing things as they have always done them. People only make changes when forced to do so. Nonetheless, by far the majority of informants were very positive, if not enthusiastic, about the possibilities provided by high technology for physically disabled adults and that such possibilities would provide a definite incentive for physically disabled adults to engage in a high technology learning experience.

Category 4. Obstacles To The Availability Of High Technology Learning Experiences For Physically Disabled Adults.

Three areas were probed to determine if obstacles stand in the way of physically disabled adults wishing to attend a high technology learning experience. While, as already discussed, expert informants perceived that advancement has been made to alleviate physical barriers standing in the way of physically disabled adults wishing to embark on a high technology learning experience, do these informants nonetheless perceive that physical obstacles still exist? They replied:

> Yes, I think these things vary. Like in Edmonton, we have DATS, and in Calgary it is similar, and some of the smaller cities have a similar situation. You get to the rural areas, and there is nothing. If your family or neighbours can't take you, you don't go anywhere. So I guess there is a disparity in services between the rural areas and the urban areas.
>
> Oh, sure, transportation, just getting around, our climate--we do have the DATS system which is a good system, but at the same time, there are some problems with it.
>
> Certainly, yes, there still are physical obstacles.
>
> They still exist, but for the most part, the physical barriers are being overcome. Building codes are improving. I sit on a committee that reviews building codes every five years, and every year we are getting more recommendations included in those building standards so that people must make them accessible, and some of that is even high tech in terms of door-opening devices. It is slow to come, but it is coming, and there have been many changes over 20 years--positive changes.
>
> Yes, major ones. I am sure you can think of a lot of buildings on the university where a disabled student would not be able to access it.
>
> Yes.
>
> Yes, there still are barriers. I think you could point to every postsecondary institution in Alberta, and you will find some physical barrier. The dilemma is that it may be a barrier for one person and not another. We are getting better at addressing them, but we are not there.
>
> There definitely are.
>
> Back 15 years ago accessibility was such a big obstacle just as far as level entrances for mobility persons to enter an environment were concerned. That is not as big an issue as it was 15 years ago, but there are still many issues out there right now.

> I think the majority of people are hit with certain barriers--physical barriers like stairs, buildings that are old, and you can't get into them.
>
> Yes, I think so, not the least of which is transportation. That is a major problem. It is much improved in the last few years, but it is still a problem. A person in a chair does not have free access to Edmonton--no question about that.
>
> Yes, there are. I think one of the biggest obstacles is transportation. If you don't own your own car in a city like Edmonton the transportation system just isn't adequate. There are long waiting periods. You are unsure of when DATS is going to come, when they are going to pick you up and if disabled people are going to be integrated, they are going to have to be on time like everybody else, and so that is one of the obstacles. There are still architectural barriers that exist. N.A.I.T., for instance, going in the front doors of N.A.I.T., that is a terrible experience. Those doors are so darn heavy. A ramp is fantastic but if you can't get in the front door, it is of no value. I think we have made a good start architecturally, but we have got some improvements to make.

All informants agreed that physical barriers still exist for physically disabled adults wishing to attend a high technology learning experience. While architectural barriers are being improved upon, particularly in the last decade, they still exist in the postsecondary institutions throughout the province. Accessibility, therefore, still remains a problem. Four informants considered transportation to be a major difficulty for physically disabled adults. Physical barriers still provide obstacles for physically disabled adults.

Are there psychological barriers or obstacles for physically disabled adults wishing to attend a high technology learning experience? The informants suggested:

> Yes, they are still there. They are still there on the side of the disabled person; they are still there on the side of the so-called normal student, and they are still there on the side of the teaching population. They exist on the side of the disabled person because maybe the disabled person hasn't completely accepted his or her disability. Maybe they are still feeling sorry for themselves. Maybe they are still thinking they can become another Gordie Howe. On the side of the so-called normal people, they don't know how to treat people in a lot of cases. There is a bit of fear there because there, but for the grace of God go I. I think a lot of this can be overcome with proper public education, and I think the more disabled people are integrated into regular places of higher learning, the less it is going to appear.
>
> I will give you two answers on that. Some individuals would have psychological barriers because they are timid or they have been sheltered. They have feelings that they just can't make themselves do it, and that is a

barrier. The other answer I would give you is not related to them but related to the other people at the educational institution. I don't think there is a high level of acceptance as I would like to see it.

I think they are there, yes. While the physically disabled person has to be realistic about what they can do, we also have to educate the public out there a little bit more. They are not educated enough yet.

Certainly. With more and more people out there, I think that is becoming less of a problem because there are more role models for disabled persons to copy. I would say 15 years ago disabled persons were viewed to live on social assistance or a pension whereas if there is an injured young person, they are expected or encouraged to go to school and try to become self-supporting.

Fear of failure, fear of another loss--I tried it; I failed. Yet there are exceptions to this.

Yes, there are in the wider sense of psychological barriers, and that can come from the staff themselves in the institutions-- people in admissions, people as program heads, the significant people that decide if a person can be accepted or not. So there are certainly some barriers there, and an individual can be very, very open on one disability just due to experience or whatever and completely closed on another. On the psychological side, the other side of it is the individual themselves. For example, congenitally disabled persons have received messages all their life that they can't--they have gone through a can't do this, can't do that. Others develop an unrealistic idea of what the requirements are. These can be psychological barriers.

Yes. The obstacle is as big as the knowledge is small. The obstacle is as big as they perceive it to be.

That is a personal thing, and some of that comes back from limitations or expectations. No, you can't be a minister because you are disabled. How would you ever be a field person for an oil refinery if you are disabled? So those expectations are often put on you so that you have a low self-image although you may have high interest. You sort of talk yourself out of areas.

I can overcome physical barriers a lot easier than I can overcome psychological barriers. It is a lack of awareness, I think, but it does exist.

For lots of people there still is a great blockage. They have been active people pursuing very active careers and suddenly to have to think high technology blows them away.

That is probably the biggest one to me, and I am including attitudes in that psychological area. There are two different groups of people. One may have been functioning normally and had an accident or acquired a disease. They have a lot of psychological problems to get over before they can sort of re-enter the world and sometimes some people just aren't able to overcome those. The other group are those who have been physically

> disabled all their lives. I think their problem is that they have quite often lived in a sheltered environment all their lives. They were never integrated into a regular school. They may have spent most of their time unchallenged. So there is a tremendous psychological pressure on that person attempting to function in a normal way.
>
> They have the same psychological obstacles that any of us have going back to school which can be considerable particularly if you didn't have much success with academics before. Plus many of them, I am sure, have an unsureness of their ability to do it over and above what a non-disabled person would have. So, yes, they have a lot of pressure on them.

The informants most definitely perceived psychological obstacles to exist for physically disabled adults embarking on a high technology learning experience. Psychological barriers can come from within the individual or from those in association with them. While two informants stressed that psychological barriers were greatest for those physically disabled adults who have been congenitally disabled, three informants suggested it is very difficult for those who become disabled to accept their present condition. It can be concluded that psychological barriers to learning experience do exist.

Do social barriers exist for physically disabled adults wishing to embark on a high technology learning experience? While two informants merely answered, "Yes," the remainder expanded their comments:

> Yes, a large population is scared of disabled people. They don't know how to talk to them; they don't know how to treat them; they don't know if they should hold the door open. So a lot of people just veer away from disabled people. They haven't had much contact with them. Epileptics are still feared because people don't know how to handle it; they don't understand it.
>
> Sure, and as much as things have improved, people are still going to turn around and stare at anybody who is disabled.
>
> Nobody will admit it, but I think it is still there; it is still subliminal. I interact a fair amount with educators and senior people and bureaucrats in government about individual advocacy issues related to high technology and possibilities for disabled people, and there is still a problem.
>
> I have difficulty with a mother's attitude who yanks a child's arm and tells her not to talk to me, but unfortunately that is still happening.
>
> Unfortunately, yes. They are lessening, but too slowly.

> Yes, although I see a lot of changes. Social counter indications can be overcome.
>
> Yes, I think so, yes. There are certain disabilities that are more ostracized than others, very subtly sometimes as opposed to very blatantly, so there are some social barriers. In the mainstream environment, the person has to be quite strong.
>
> Social barriers come into play because there are different expectations put upon different classes of people, and there are different expectations for handicapped as opposed to able-bodied. There are different expectations for Indians and Negroes and Caucasians. Certainly they do come into play.
>
> Yes, and I have got to couch that by saying that it is an awful lot better than it used to be, but we can't become complacent either.
>
> I think there is a reverse social obstacle in that with the rather terrific government programs like social allowance and AISH, there has inadvertently been a dependency created, and it is somewhat threatening to risk going to school and getting employment and coming off those nice little security cushions.

The informants perceived that social obstacles do exist for physically disabled adults wishing to engage in a high technology learning experience. One informant stated these obstacles to be subliminal while another stated them to be both subtle and blatant. One informant suggested society has different expectations for the disabled which can act as an obstacle. Another informant suggested that government funding has inadvertently tied many individuals to assistance rather than helping them to go out and seek independence through schooling.

Generally, physical, psychological, and social barriers are perceived by the expert informants to exist for physically disabled adults endeavouring to pursue a high technology learning experience.

Category 5. Efforts Physically Disabled Adults Would Be Prepared To Undertake In Order To Engage In A High Technology Learning Experience.

Five concerns were raised with the informants to ascertain what efforts physically disabled adults would be prepared to undertake to attend a high technology learning experience. In developing a high technology learning experience for physically disabled adults, it is beneficial to know what efforts they would be prepared to make in order to engage in such an activity. Would physically disabled adults be prepared to attain any academic prerequisites considered necessary for success in such a learning experience? Three informants simply replied, "I would think so," "Yes, definitely," and, "Yes, I think so." The remainder of the informants reasoned:

> Oh, sure, yes. I feel so strongly about that that if a disabled person expects special treatment, then that really has to be looked at as to whether he is ready to go through with an educational process.
>
> Yes, they have to get the same academic prerequisites as other adult students. The academic prerequisites at schools are set forth to ensure that at least there is a potential there for success. I think disabled persons are generally expected to get the same academic prerequisites as anyone else, and I don't think that is an issue. I think they simply have to.
>
> As far as I am concerned, they have to. If we are talking academic prerequisites, they have to be attainable. I think there has to be a standard.
>
> The disabled population is no different than any population, so some are more than happy to do that, but there would be some who would feel they should have special entrance. I believe they should have to achieve them.
>
> Yes, I think so. My experience has been good. Yes, I think the response that we got was that, yes, people would be willing to upgrade.
>
> Oh, yes, I don't think there is any problem.
>
> No, we have no trouble with getting them to take regular prerequisites. As an adult, the people we deal with get adult privileges in postsecondary which means they only have to have the prescribed courses rather than have a high school diploma. We have no trouble with them doing that.
>
> I don't perceive any exceptional views of that. I think that generally the desire is to get into whatever everybody else is doing, not to have special treatment.
>
> I would say there is some of both. I think it depends on the nature of the disability, how long they have been disabled, and if they have been sheltered. Some of the people who have congenital disabilities are not street wise, and sometimes it is not so much them as it is their environment. Their parents or the people they are living with often expect everything handed to them, and the individual only expects what their parents expect.

The majority of informants felt that physically disabled adults would definitely be prepared to attain necessary prerequisites to enter a high technology learning experience. However, two informants felt that while some individuals would be prepared to obtain prerequisites, others would feel that they should not be required to do so. One informant stated such a view could be the result of a sheltered environment. Nonetheless, it can safely be concluded in the overall that physically disabled adults would be prepared to attain any necessary prerequisites to enter a high technology learning experience.

In today's society, many individuals are prepared to relocate in order to attend a particular learning experience. Would physically disabled adults be prepared to relocate to attend a particular high technology learning experience? The informants outlined:

> Yes, I think so. I think probably you would find people willing to move away from small centers to a large center than vice versa because it is very obvious that small centers don't have nearly the same opportunities and accessibility. It would be almost impossible in most small centers. Again when you talk about moving across the street or doing this or doing that, there could be lots of different reasons why they could or couldn't or would or wouldn't.
>
> I would say the same as any young person. However, I think there may be problems with parents being more protective of a disabled person. Also they may need more support systems than an able-bodied person.
>
> I guess it depends a lot on your disability and what support services you need, how supportive your family has been; and you are going to lose those kinds of things. I would think many of them with severe disabilities would have a great reluctance unless their family is able to move with them or some kind of support system is there.
>
> Sometimes. One of our biggest barriers, and again I can relate it to the AISH program, is that we will not provide AISH if there is training available in Alberta that could reduce their handicap. Many parents are unwilling to let their adult children move away for that training, so we end up refusing AISH. So, yes, it happens, and moving away from those family supports when they have lived a sheltered life is a big move.
>
> My experience has been that they would. We have a lot of people moving from rural areas to urban areas to do that kind of thing, and it is a question of facilities, residences, accommodations, and all those kinds of issues.
>
> It is not a problem if the support is there. If the reason I live in Peace River is because my support system is there and my family helps me with my activities of daily living and it doesn't cost me anything to have that,

then I am likely to stay where that support system is. We see more and more disabled persons moving to the metropolitan areas because there is more available for them in terms of recreation, leisure, and education, but those people are also the people who perhaps don't need support services to get through their daily activities. But at the same time if there are group homes there, then they will stay in the metropolitan area too, so it really depends on your support base.

I think it is inevitable, Bernice, in some cases. I think that is a thing we want to get away from is having to move too much. Like in the past, we accepted very much we should ship them to the States or ship them to a specialized school, and I say let's look at what we can do in the province at least. And there may be a S.A.I.T. or a Mount Royal or whatever college that may be better geared to a particular program, and so there would be that move necessitated. For some people, it is quite traumatic to move from one community to another, and yet that is really what gets them going and more independent, and it is really more a reflection of what the world is coming to.

I don't think moving is a problem. Generally speaking, many of the disabled move. Moving to the city isn't a problem for a disabled person because there are more services here in the city than there are out in the rural setting, so that may even be less of a problem for a disabled person coming from a rural setting into the city.

Very definitely--they are prepared to move. I think it is the old case that if you can't bring the mountain to Mohammed, Mohammed has to go to the mountain, and that is a fact of life. But it is very scary for those people who haven't managed their rent, their cooking, their budgeting, and their shopping. Those life-skill things have to be their first.

I don't think it is a problem to move. It could be a problem within Alberta. It is a problem unless the person is on social allowance or a combination of social allowance and Alberta Assured Income for Severely Handicapped, and why that is a problem is that there is no home care--there is no personal care out there, and so it is going to cost the person about 12 dollars an hour and if they require a live-in person, you know, that is an awful big chunk of money to have to pay out of your own pocket. Otherwise it would be no different for a disabled person to move than anyone else except that they have to re-establish support systems all over again but, depending on the individual, if they are adjusted and if they have accepted their disability, that really shouldn't be any problem given that everything else is equal.

I would think they would move as other students move to campus if they are going to study here.

Sometimes it is not only a psychological hurdle, but it is a major financial problem. It is not simply finding an apartment; I would have to do more than that if I were mobility impaired, for example. I would have to make sure that I could get onto DATS for transportation; I would have to make sure that my personal care needs are taken care of; I would have to make sure that I am in an accessible house or an apartment; I would have to

> make sure that I have shopping around me that is accessible, and all of these things become additional burdens.

While the informants generally concluded that physically disabled adults would be prepared to move in order to attend a high technology learning experience, they also recognized that such a re-location could be fraught with many difficulties. The foremost consideration would be the availability of support services and aids to daily living as the individual may require. Transportation may also be a problem that would have to be considered. Such a move could have definite psychological implications, and one informant suggested that often parents are reluctant to allow their disabled adult children to re-locate. It was generally recognized that re-location may be a necessity and a fact of life if the individual is to make progressive steps in their life. It was also recognized that it may be easier to re-locate to a large, urban center than to a rural center. Many considerations must, therefore, be addressed before re-locating for physically disabled adults.

Support services and access to transportation are essential to the lives of physically disabled adults. Would such individuals be prepared to arrange for equipment and transportation in order to attend a high technology learning experience? While one informant merely replied, "Yes, yes," the remainder concluded:

> Most people have been doing that by themselves for years.
>
> No, it is not a problem if you are staying within the province. If you are going across Canada, of course, it is different in every province and that could be a problem. You are going to have to do a lot more homework than somebody else who didn't have a disability but it can be done.
>
> Some of them. The majority, perhaps not. Some people have a fair idea of what government is able to provide or what long-term disability insurance terms are able to provide in the way of equipment, but generally my findings are that most clients don't even know where to look in their insurance policies. They haven't looked at the fine print and if they did they don't understand it, the terminology is too difficult.
>
> I think they are used to doing that. There certainly is the support and help available to assist disabled persons to get those sorts of things.

> I think that is part of the responsibility. We are talking about adults. I think that is the shock of coming here where we expect the individual to arrange for rides and stuff like that. I think we teach the person to grow when, sometimes, it would be far easier for us as support people or instructors to pick up the phone and make a call for a guy. It is far easier to do that, and it makes us feel good because we did something, and yet it is more of a learning experience if we give them the phone number and have them make the call. Sure they will do those things.
>
> Most of them would prefer to do that themselves. There are, of course, many who can't because they are either institutionalized or they haven't had the opportunity to do it on their own, and in that instance, I really believe in the concept of having coordinators or community workers who will assist them to get through the process, not do it for them.
>
> Oh, I think so, and certainly our people have a lot of resources and support in doing those kinds of things. It is a very real part of the process of rehabilitation.
>
> I think any handicapped person would be willing to make those arrangements as long as the arrangements are possible to make.
>
> Most of the people we deal with have post-trauma or post-disease and have been tied in with an association such as the Paraplegic Association and the M.S. Association, and they get support and instruction from these Associations. They get help in how to get help, how to get transportation, and these types of things.
>
> I would say that is a factor more of intelligence than a factor of disability. For the average person if they don't know how, they can find out how and do it like anybody else that has that level of intellectual ability.
>
> Well, most people know how to arrange for DATS. Yes, most of them would be able to do that. It depends though on how much they have been sheltered and how much they have always depended on their parents to do their arranging for them. You would be surprised that even with an adult sometimes this is very much the case and that is only because they have not gotten away from home.

While one informant felt that the majority of physically disabled adults would not be in a position to arrange for equipment and transportation, the remainder felt that this would not be a problem. Two informants suggested this is something they have been doing for years. Another informant felt this issue to be a factor of intelligence, not disability, and that, therefore, the average person would be able and prepared to arrange for such things. Two informants stated that the resources are there to help the individual help themselves. In this respect, one of these informants referred to the various associations designed to support individuals with different disabilities. Another informant referred to the role of support people and instructors in assisting individuals to help themselves, thereby creating a growing process. While there are some extenuating circumstances surrounding the ability of physically disabled adults to arrange for equipment and transportation, they are generally in a position to do so and, furthermore, willing to do so.

Many physically disabled persons are able to receive funding for vocational training through Alberta Vocational Training and Vocational Rehabilitation of Disabled Persons programs. Should a particular high technology learning experience not be covered under one of these programs, or should a physically disabled adult not qualify for assistance under one of these programs, would that individual be willing to apply for a loan through the Students Finance Board? Are physically disabled adults generally willing to utilize the Students Finance Board? The informants responded:

> I think so. People would use it, yes.
>
> I don't really know. I don't have any way of knowing. I haven't seen any stats to identify people as physically disabled, so I don't know.
>
> Well, if it is not available, then they would have to use the Students Finance Board. I don't think they would quit. I don't think many of them view themselves as that disabled or handicapped that they can't do many things other people do and while people might scream if they phased out our program (VRDP), I don't think they would quit. There would still be disabled people going to postsecondary institutions.
>
> I think the motivated ones would. It wouldn't matter what you told them, they would do it. Certainly we help them out by giving them VRDP or AVT, but I still think that a vast majority of those ones going into school would continue to go regardless.
>
> I don't see why they wouldn't be willing to. And when I say that, I have to say all other things being equal. It's the other things that are often not equal that make that difficult. Some may feel there is no reason why they can't use the Students Finance Board. And I would reply that they can, but they also have to finance a van to get back and forth to school, and that costs $25,000 and on and on and on. So if all other things are equal, yes.
>
> I think some disabled people feel that the world owes them a living and if they are not willing to pay for it, then they won't. I know there are other

> people that if they have got a goal in mind, they will do whatever they need to get that and achieve that.
>
> Some are, and that is a growing thing right now. I don't know if you have followed that, but our stats show that as well. There are staff here that assume that every person with a visible disability is funded, and that is not the case. I see more turning to the Students Finance Board. I think policies are going to change whereby VRDP will become more funds for training and retraining and looking mainly at educational costs and support costs whereas a person will then make use of their own earnings or family or the Students Finance Board or a combination for their home and personal costs. I think that is the way it is going to go. There are, in fact, more and more going that option, and some are even using that option for part-time courses using part-time bursaries.
>
> Certainly they would.
>
> I think they could be encouraged to do that.
>
> Sure.
>
> Willing to, yes, I would think so. If there is some flexibility with the Students Finance Board, I can't see people not using it.
>
> I think they definitely would use it if it is clear to them that if they are not able to repay a loan because of not finding a job, then they are forgiven that until they do. I think they just need not to be so scared. I sure see the shift as a simple one.

The majority of informants perceived that physically disabled adults would be willing to utilize the Students Finance Board if other resources were not available to them. Two informants felt that such a willingness might be an individual thing and that those motivated individuals would be willing to do whatever was necessary to engage in a high technology learning experience. One informant stated emphatically that statistics indicate that disabled persons are using the Students Finance Board, and the trend is moving in that direction. One informant declined an opinion indicating that in his capacity he had no statistics or way of having a feel for the question. It can nonetheless safely be concluded that informants perceived that physically disabled adults would be willing to use the Students Finance Board in order to attend a high technology learning experience.

What would make an individual physically disabled adult acceptable and successful in a high technology learning experience? The informants perceived:

> Their attitude and potential--two tricky words, but the potential would be tied into an assessment. There should be some kind of a screening process that says you are not ready to begin at this point, but we suggest that you begin at another and that there be another and that they are not just turned away.
>
> First of all motivation--desire to be there. I guess that would have to be the primary thing.
>
> Smart enough to do it.
>
> Well, I think that individual has to be together themselves. They have to be emotionally stable. They need to have the rest of their life in order--their leisure time, their training time. They have to be in touch with their values. For example, do they prefer to sit home on AISH where it is comfortable, or are they going to feel better going out and earning a shekel? I think they need to have some handle on who they are, what they are, and what their potential is. Unwittingly I think the system has gotten in the way of that in certain cases.
>
> Competence.
>
> Well, I think it is a certain amount of strong personal skills, in other words, their own make-up, their own drive. I am borrowing from a colleague who says there has to be a certain ability, a given ability that a person has; they have to have motivation--there is a certain motivational factor, and the other part of the formula is an opportunity. That makes success. All three ingredients are essential. You can't have one without the others. We are working on the opportunity phase of it. The person has to come to us with attributes and motivation.
>
> A positive attitude about themselves.
>
> Competence. It would be detrimental to individuals to try to put them through a program they did not have the competence or ability for.
>
> Motivation. It is the key to the whole thing; it really is.
>
> If they have got a goal and are motivated to reach that goal--the ones we find failing really don't have a goal. They can't take the math they are taking or the English and relate it to reaching that goal, and that is the important thing.
>
> Well, there are a lot of factors that would be ingredients in success or failure. I think attitude is one. Also appropriate selection of the program. If it is not meeting your needs, there is not going to be much incentive to keep going.
>
> Their attitude, their motivation.

Half of the informants felt motivation to be the key to success for physically disabled adults in a high technology learning experience. Two informants talked about attitude.

Another informant particularly referred to a positive attitude about themselves. Four informants were concerned with competence. Yet another informant referred to a formula for success which included ability, motivation, and opportunity. Still another informant suggested a successful individual would be one who had it all together as it were. In the overall, motivation, ability, attitude, and competence are the features that would indicate success for physically disabled adults in a high technology learning experience.

Category 6. The Relationship Between The Degree Of Physical Disability And The Appropriateness Of A High Technology Learning Experience.

Five concerns were used to probe the relationship between the degree of physical disability and the appropriateness of a high technology learning experience. There is no question that the physical disabilities of some individuals are much more severe and inhibiting that those of others. Do those who are more severely disabled require more accommodation than those less severely disabled? What kinds of learning experiences are appropriate for a particular degree of disability? In this investigation the matter of physical facilities, including accessibility and transportation, were first addressed with the informants. They advised:

> If I have a physical disability that paralyzes me from the neck down, I will need all kinds of things in the way of facilities as compared to someone less severely disabled.
>
> The less you are able to do for yourself, the greater the barriers. If a person uses canes, they may need some adaptations here and there but if a person is a high-level quad, they may need attendant care most of the time. So it is a function of independence. Things like environmental controls transfer to the individual a level of independence. It shifts the responsibility and the control and the power, and that is the key thing.
>
> No, a lot depends on the individual and what they do with what they have got and in what they are going into. I see some people coming in with arthritis through VRDP and retraining, and I have got a staff member that I would judge to be three times as bad, and she is here at work whether it is 90 above or 30 below. She is on eight different pills or something, and every moment is pain, but she is here. I think it has more to do with the motivation and desire of people.

They don't necessarily need more in the way of physical facilities. Not necessarily, and again it is how you define disability. The tough part is how do you compare them? If a person is totally paralyzed from the waist down, how do you compare that to someone who is blind? Certainly, I think from my experience we know that some disabilities become more restrictive than others as far as what a person can do, but not necessarily, and a lot depends on the individual.

I don't think that it is a foregone conclusion that the more severely a person is disabled they will automatically require more in the way of physical facilities. I think that is an assumption. For example, we have a rehab counsellor on staff who is a C-3 quadriplegic with absolutely no hand function at all. You would think he would require more breaks or accommodation in his employment than anybody else, and I have to say that quite to my surprise that isn't true. Now, would it be true for somebody else? It might be.

Yes, definitely. I am physically disabled; I am paraplegic. There is very little I need to be independent other than physical access to a program. However, if I am a quadriplegic, then I may need assistance in opening doors, I may need assistance to get set up to do my program, and I may need high-tech equipment to complete the program. If I am a severely disabled quadriplegic and also have a speech impairment, I will require more assistance. So the more severely disabled you are, the more you are going to need to complete that program, and the more high tech you are going to need. You would also require more accessibility. I can get up one step. Two steps I might as well forget the program. If I am using a power chair, I can't get up one step, so even in that sense, there needs to be a little more in terms of accessibility, or there may need to be more. That is a foregone conclusion.

Perhaps, yes.

Certainly, yes. The more severely disabled would require more in the way of technical aids or high technology.

You will probably need more elaborate equipment. A paraplegic, for instance, just needs a manual chair, and a quadriplegic, most of the time, would need an electric chair, so there is a difference in the type of equipment and also in the cost of the equipment. A paraplegic doesn't necessarily need a computer to go to school whereas a high-lesion quadriplegic or a person severely disabled with M.S. would need that computer and probably need a voice-activated one or one with special switches. With accessibility, a para could probably shove the door whereas the quadriplegic would need the door to open automatically.

You may. You may require some personal adaptations.

Physical needs are definitely affected by severity of disability. Schools I have seen in the States have people who are in life support systems and are all strapped to their chairs, and they are travelling around with them. That depends on the classroom having the energy source, but I think a lot of those things are really quite elementary adjustments to make.

While the majority of informants were of the opinion that more physical facilities would be required to accommodate an individual the more severely they were disabled, one informant felt this may be so, and three informants felt severity of disability would not be a factor. Two of the latter three informants felt this instead to be related to motivation, and all three suggested it was an individual thing. Opinions were, therefore, diverse to the extent that one informant suggested this to be a foregone conclusion while another stated it was not a foregone conclusion but was merely an assumption. Notwithstanding that the majority of informants felt that the greater the disability the greater the need for physical facilities, the dissenters must also be recognized. It can safely be concluded that those more severely disabled individuals may require more physical facilities for accommodation.

With respect to the ability to attain prerequisites if one is more severely disabled than another, the informants outlined:

> I may have had to fight more to stay within a regular school system to get my Grade 12. The more severely I am disabled, the more I may need personal care assistance or somebody to hold my notebook up for me while I am laying in a stretcher to read. However, if I have these facilities and all things are equal, I should be able to get my prerequisites.
>
> I don't think they are any harder to get. It is just a matter of planning your career. You have got to get them and so does everybody else. It might take you more time, but I don't think they are any harder particularly from an intellectual point of view.
>
> They may have difficulty with the pace of the course work, and that is why I feel there needs to be a degree of flexibility.
>
> Certainly there may be more obstacles to overcome, yes.
>
> If they are fully accommodated, no. It depends on how you accommodate. I think you still insist on the prerequisites, but you allow the person to challenge the exam in the form that they can challenge it. I don't see a lot of reasoning to change prerequisites.
>
> They aren't more difficult if you have the high tech.
>
> Possibly. In looking at our client population often times the prerequisites for high technology wouldn't be there, but it wouldn't necessarily be relative to the severity of the disability.

> No, I don't think severity would have anything to do with the ability to get prerequisites.
>
> If we make the necessary adaptations, no.
>
> Not if they are given the time they need. The greatest influence that severity has is on a person's time.
>
> I would say that whatever is required to get the prerequisites handled needs to be done.
>
> With the accommodation they need, no. They should meet all the requirements academically.

The majority of informants suggested that if necessary accommodations were made, the more severely disabled should not have difficulty attaining prerequisites. One informant felt that severity of disability had nothing to do with achieving prerequisites. One informant suggested there were more obstacles, and one informant stated that possibly it would be more difficult for those more severely disabled to obtain prerequisites. It can be concluded that if required accommodation is attended to, then more severely disabled adults should not experience undue difficulty in obtaining prerequisites.

If standards are to be maintained, what considerations should be given to curriculum content to accommodate those who are severely disabled? Do the severely disabled require extensive altered curriculum content to accommodate them as compared to those less disabled? The informants answered:

> Generally speaking the curriculum should not be changed. There may be optional parts that can be changed around. Then what you do is substitute something instead of just forgiving that portion. The attitude of "oh, the poor person" and just giving them a credit is wrong. It is far easier to be mothering, and that can be more harmful than being too tough, in fact. On the curriculum, I would say there are instances where there is just no realistic possibility of the individual using it, and I think that becomes a flexibility area where you substitute.
>
> If it is an accredited course, then what is offered is what the disabled person should normally get. There may have to be some flexibility though.
>
> It shouldn't be altered unless it is totally unrealistic for the individual.

> I don't know of any curriculum changes or requirements that were made in curriculum here for students who have physical disabilities.
>
> I don't think there should be any shortcuts.
>
> I don't think we should put disabled people in the position where society will say they have a disabled degree or diploma, and that is what will happen if you start altering curriculum.
>
> As little alteration as possible.
>
> We shouldn't mess with the curriculum.
>
> I think we should attempt to offer the disabled person, for lack of a better word, the most normal curriculum. We should stick to the curriculum as closely as we can. However, if there are certain things in the curriculum that are not particularly important or relevant, and they cause great hardships to the disabled person, I think we should throw them out and allow the individual to hone up their skills or spend their time doing something else. Individual educational plans would take that into account--allowing some flexibility from within the program so that the disabled person can take it.
>
> There may be some portions of a course that a person cannot take because of physical limitations. In that instance, alternatives should be provided. Nonetheless, the individual needs to acknowledge that to get a particular degree, certain courses are required.
>
> Curriculum should not be altered--definitely not.
>
> The same curriculum for everybody--the same expectations.

Generally, the informants felt quite strongly that changes should not be made to curriculum to accommodate severely disabled adults. Nevertheless, six informants did suggest that there may be instances where a limited degree of flexibility could be permitted. This could be in instances where the individual would not realistically ever be able to use that skill or training or where a particular portion of a course is not overly important and is causing the individual undue hardship. In such instances, this portion should be substituted and not merely dropped. It can be concluded that curriculum should not be altered unless a portion of the curriculum is irrelevant and causing undue hardship. In that event, curriculum content should be substituted for content realistic for the individual.

The method of instruction could be altered to accommodate those who are more severely disabled. Is this realistic? The informants stated:

> That is where flexibility would come in. I don't think we provide for individual needs and more needs to be done there.
>
> I would allow the person to take more time. I would allow somebody who was working their way through university, for instance, to complete their degree over a longer period of time.
>
> It needs to be more flexible. Can this person do this in four semesters instead of three?
>
> Yes, flexibility should be in the methodology--individual educational plans and this sort of thing.
>
> There should be flexibility in the methodology of teaching, I think.
>
> Certainly obvious things. With a blind person, you obviously don't write a lot of things on the blackboard. There have to be some adaptations. One may not have writing ability but have intellectual ability, so we may need to make some adaptations as long as they can be made on the job.
>
> That is where we need a lot of flexibility. Somebody may take an hour to write an exam, and another person may take six hours to write it. The physically disabled coordinator in an institution may have to go to a professor or an instructor and say, "Hey, cut off your whiskers and mustache because you have a hearing-impaired person here who is reading your lips, and they can't when you have got a mustache." So there are lots of things you can change without changing the standards in order to help the person get through the program.
>
> The rate at which a person can work is going to be a factor. Accommodation in the way of computers and other aids may alleviate that, but you may still need to allow the individual more time.
>
> The changes in methodology that may need to be made are time limit and perhaps ways of demonstrating their knowledge whether it be oral or written or what.
>
> You are going to have to make changes according to the disability and the degree of the disability. For example, if you have a person who has a severe speech impairment, if they have a question for the instructor in class, it could take a while to understand. That takes a lot of time, so you are going to have to make some changes in your presentation; or have the support services there that could interpret for that person; or the technical aid that will allow a communication device that they can press or talk into or press the codes in so the machine speaks for them.
>
> Your flexibility should be in your methods.

> Methods may need to be altered particularly for the more severely disabled.

The informants reached consensus that there may need to be flexibility of instruction and methodology for the more severely disabled persons in order to accommodate them in a high technology learning experience. The time element was particularly noted and, therefore, flexibility is particularly relevant in this respect. One informant suggested that many changes can be made without altering the standards.

The informants concluded that the more severely individuals are disabled the more facilitating they may need with regard to physical facilities, that attaining prerequisites should not create any undue difficulties if the individual is fully accommodated, that only minor changes should be made to curriculum and then only when absolutely necessary, and that flexibility in instruction should be readily made where necessary.

Category 7. Criteria Perceived To Be Relevant In Determining The Best Type Of High Technology Learning Experience.

A number of criteria should be considered in planning and developing a high technology learning experience for physically disabled adults. Eight concerns were addressed in this study. A logical first step would be a career planning element. Is career planning an important part of such a learning experience? The informants stipulated:

> I think that is a given.
>
> That definitely has some merit. I think that a lot of people with physical disabilities don't really know what they want to do, and so certainly matching them with job requirements would be a help. It would help them be realistic. There are some people with physical disabilities who haven't come to terms with reality.
>
> Definitely because I have encountered disabled persons in my work who have sometimes unrealistic goals in terms of what they want to do and what they are physically able to do. I remember an instance years ago with a young disabled man at the Glenrose Hospital who had a severe speech impediment, and his goal in life was to be a radio announcer, and no one ever addressed the fact with him that this was not a good career for him. He went through much of his high school talking of being a radio broadcaster when even people who worked with him daily had difficulty understanding him. So in terms of career planning, it is essential that people sit down and talk about their skills, what their physical disabilities

are, what their physical abilities are, and how those physical abilities may match what is required out there on the job. As well, I think the whole concept of employment right now is very difficult no matter what your abilities, so I think it is essential that you know where the areas of employment may be when you finish a program. I think it is necessary to know what is happening out in the community.

I think it is really important when you are thinking of doing something for a population that you are meeting their needs. There is need for assessment in terms of physical capabilities and potential needs. My impression is that a disabled person, like an able-bodied person, needs to know what a career entails. If they are disabled, then they need to know what changes or adaptations they personally will need to fit into that mold or ropes of a career. So if that doesn't proceed, what they actually do there could be a lot of wasted time and effort. Their goals need to be realistic.

In terms of vocational rehabilitation, one of the basic steps is looking at the strengths and skills and abilities of an individual and matching them with career demands and work-site demands. That matching is a critical and key element.

Yes, I think that is really a requirement that disabled people, particularly those disabled by trauma or disease, re-orient themselves to the strengths they have left. This can best be done be counselling--an assessment thing--physical and mental aptitudes and interests and then try to match them up with the needs of the job they are looking at.

Certainly, the first step is career planning, and it doesn't matter who the person is, handicapped or not.

I think so. In other words, if a spinal cord injured person comes out of rehab and his talents that have made him successful all his life have been physical, certainly in terms of what he wants to do with the rest of his life, if he is unable to pursue that kind of a career, I think he needs career planning. He needs some matching of residual skills with what his physical abilities are and how technology might be able to assist, particularly an assessment that looks at the potential with respect to high technology.

Yes, definitely. My emphasis is vocational counselling.

I think it would be a very important first step, certainly.

I think there should be a career development program established for everybody. There certainly should. I think it has to be remembered with physically disabled people that they have to go through a long process of adjusting to their disability before they can accept it, and in so doing, they have to come to the realization of what their limitations are. The career they choose and that is developed for them is going to have to fit their physical limitations.

I think career planning is important for everybody.

The informants were adamant in stipulating that a career planning element be an essential part of a high technology learning experience designed for physically disabled adults. Two informants felt this to be particularly important for those who became disabled by trauma or injury. Nonetheless, another informant talked about an individual who had a congenital speech impediment and the need for career planning. Career planning is particularly relevant for the disabled in order to help them to be realistic relative to their abilities and their career goals.

Should academic prerequisites be part of a high technology learning experience designed for physically disabled adults? While two informants merely replied, "Yes," the remainder of the informants noted:

> I don't think just because they are disabled they should be given special privileges. If you have an academic standard for everyone else, then the disabled person should have to meet that as well.
>
> There should be an entry assessment as to whether the individual has adequate background to enter the program.
>
> If it is an academic program, yes. I don't think a physically disabled person should be given a watered down program.
>
> Yes, I think that people should jump the same hoops whether it be the disabled or an ethnic minority or whatever; otherwise, you soon have a second-class education. So I think it is important that wherever possible, the disabled people meet the same standards as anyone else.
>
> It depends on the end result. My reason for hesitation is that we see far too many programs that start out to serve one group whose needs aren't being met, but then they become somewhat fixated on success, and they start to raise the entrance qualifications, and eventually all they are doing is competing with everybody else for the same people who didn't need the service in the first place. So when you say academic prerequisites, yes, they are needed, but sometimes they are used to screen people out unnecessarily. If they are necessary for them to do the program, then they should have them.
>
> I think there have to be some standards. There has to be some sort of assessment to indicate whether or not the person has an aptitude for a given career.
>
> I feel in theory there should be. There could be a little bit of room for trying to assess people in the environment. I have seen people succeed in

> a high technology area with a Grade 7 or Grade 8, but they had a natural aptitude for mechanics or whatever.
>
> Definitely. I feel that the physically disabled should be treated no differently than anyone else in society.
>
> Ideally, yes. My concern is with all the talk of resource cutbacks and cutbacks here and cutbacks there that what happens is we end up mainstreaming people without providing the safety networks which they need to obtain prerequisites.
>
> Yes, there would have to be. You can't do Lesson 2 if you can't do Lesson 1, so in a sense, Lesson 1 becomes an entrance test really.

The informants perceived that a high technology learning experience designed for physically disabled adults would have academic prerequisites. While some informants stated the physically disabled should meet the same criteria as anyone else, some informants emphasized the need for prerequisites to determine if an individual was adequately prepared to enter a given program. One informant cautioned against raising entrance requirements to a program designed for a particular needs group in order to ensure program success to the point where it was no longer meeting the needs of that group. Necessary academic requirements should, therefore, be a part of a high technology learning experience designed for physically disabled adults.

A high technology learning experience designed for physically disabled adults could be very job specific, or it could be broad in nature providing the individual with life-skills. Therefore, should the curriculum be job specific, or should it be an overall broadening experience? The informants suggested:

> I think any educational program should go just a bit broader than simply job training because there are other elements that make up the whole person and require of that person to be a whole person as far as the occupational world is concerned. Sometimes the disabled take something suited to their disability, but they don't have the personality kinds of skills to go with it. If you look at the criteria that interviewers use, the personality things are high on that list in addition to knowing a skill.
>
> It should be broad and the same as for anyone else.
>
> I think it should be as broad as any other. They are going to have to get out there and compete in the job market with the rest of the people who are trained in that particular profession. Therefore, they are going to have to

> have the tools to be able to sell themselves and if their training isn't as adequate as the so-called normal person, then they are not going to get hired, and we are doing disabled people a disservice.
>
> It should definitely include life-skills--interpersonal skills.
>
> It should include interpersonal skills and life-skills and those kinds of things. There should be that kind of search for excellence. Often a disabled person has been deprived of those kinds of experiences.
>
> It should be primarily job related, and that is not to say other needs are not there. If the purpose of the program is training for employment, then I think that should be the primary focus.
>
> If you are going to mainstream the disabled, which is my preference, then they should be taking the same broad curriculum as anyone else. However, such things as adjusting to their disability can best be done by associations that have been formed to do that kind of thing rather than an educational institution. For example, in the case of a paraplegic, the Paraplegic Association has the background and the experience to deal with that rather than importing it into a postsecondary institution.
>
> It has to be tapered to the needs of specific individuals. I don't think you can make a generalized statement about people with disability. Whatever program you design, it will probably meet the needs of some people. It doesn't automatically mean that everybody who is a wheelchair user is going to benefit from the program. So if you design a skill development program, there are some people with disability who want to acquire the skill only, and they don't require any other support or education or instruction or whatever. There are other people who may need more than just the skill acquisition. If you design a program one way, it meets some people's needs and if you design it another way, it probably meets some people's needs. So I would design it on the basis of what the individual requirements are and not on a theoretical model. There would have to be a large enough group with similar needs, therefore, to design a program.
>
> It should have a broad base.
>
> I think we should deal with whole persons, not just a part of them. I think there should be areas to deal with all people in all aspects of their life.
>
> It should be broad in scope as it would be for any other individual. The disabled aren't asking for anything different.
>
> It should provide life-skills and social skills in addition to job-related training. The whole person needs to be addressed.

The majority of informants felt that a curriculum designed for physically disabled adults in a high technology learning experience should be broad in scope and designed to serve the whole individual. One informant suggested that the primary focus should be job related but did not exclude other needs nor did he specify if job-related needs might include, for example, interpersonal skills. As well, one informant felt the curriculum should be tailored to individual needs so that a specific curriculum would not be developed until a large enough homogeneous group was present to warrant it. In the overall, it can be concluded that a broad curriculum base should be designed for a high technology learning experience for physically disabled adults.

What methodology or instructional technique should be employed in a high technology learning experience designed for physically disabled adults? The informants reasoned:

> Individuals probably progress fastest if they can be given a lot of individual attention. It depends on the costs and the compatibility of the kinds of technologies they are using. If they are sharing a type of technology and goal, then it makes sense to do something like that together. If they can progress at different rates because of a limitation, it is important not to hold people back and help them proceed as quickly as they can. There need to be guidelines, and there needs to be perhaps a contract--a type of contract worked out to meet the guidelines and then perhaps a little pressure if needed to get going and keep going.
>
> It needs to be balanced between a structural methodology and a self-paced one. One of the problems I have seen in previous programs is that when it was strictly self-paced individuals who could have advanced more quickly chose to go much slower. They were allowed to stay in the program much longer than they needed to physically. I don't agree with that. Yet at the same time, there are some people who are so severely disabled that they need more time to complete programs. However, I think there needs to be some structure and some demand put on them to finish within a certain time.
>
> I think each case should be reviewed on its own merit, and some flexibility should be allowed for physical limitations. The instructor should just use common sense and tailor the pace.
>
> A very crucial part of a program for physically disabled individuals is to be able to pace it to their own speed. It is a factor of just stamina for some people. Computer-assisted instruction offers that feature.
>
> Instruction should be paced to the individual with overall guidelines and time frames provided and agreed upon.
>
> You have a continuum; it is not all black and white. Where possible, I think you try to mainstream people. This may require some adaptations by the institution and by the individual instructors. You may need people

> to take notes; you may have to get permission to tape lectures; you may have to be able to get people to assist with lab work. So there are a variety of things that can be done in the institution, so the person can continue with mainstreaming. For those who can't go to a regular postsecondary institution and can only go part-time, you are looking at different adaptations and time lines.
>
> If we are training the person for a job, the methodology and time line should be fixed. An employer is not going to let somebody work at their own pace. There may be some cases where initially you start a person off slower to build them up to that level, and that is fine. If we are training them to do work on their own time at home, say accounting, it may be fine to work at your own pace. Most jobs they are being trained for you have to be there from eight to five, and they have to do certain tasks in that time.
>
> For the person in a word processing class who uses a mouthstick and has a posture that is very impossible in terms of seeing a screen or using a keyboard, structure scares me. I see some kind of flexibility where we look at the individual, and we put him in a situation where the interface between him and whatever he is doing is important. There need be very individualized interaction between the individual and the program. I don't think guidelines should be absent though, and I think one of the most detrimental things one can do is to compromise expectations. But we must avoid structure in the sense of an attitude that says our computers are on a table that is three feet high as opposed to we can take our computer and mount it on a camera tripod and put it anywhere you want it, so that is not a problem. It is that kind of structure that I think is damaging, and that is what we see so often.
>
> I feel it should be self-paced with certain expectations, certain guidelines, certain time frames. A firmly adhered-to contract is needed. I saw it work at P.H.O.E.N.I.X. where a lot of the confidence building occurred in the initial part of the training, and it wasn't one of the goals, and you don't get that time spent developing skills like that.
>
> I think it should be tailored to the individual. I think it could be self-paced to the individual as long as the individual covers the same course content and is marked at the same level as everyone else.
>
> Education that is self-directed, presuming the person has the maturity, is going to give you more motivation, but we have to have guidelines to ensure that it gives you the skills that you need for a specific job.
>
> Ideally I think there should be a self-paced aspect but within certain limits—within certain guidelines.

With the exception of one individual, the informants suggested that the instructional methodology employed in a high technology learning experience for physically disabled adults should be flexible and self-paced or tailored to the needs of the individual. The time element was considered the most crucial in this flexibility, but minor things like adjusting equipment were also discussed. One informant perceived that the inability to be flexible was often an attitudinal problem. However, these informants generally cautioned that guidelines should be provided and a contract agreed upon and followed. The one dissenting informant felt that methodology should be fixed since an individual would be expected to perform certain tasks within a given time frame on the job. However, this individual recognized that it may be advantageous to allow flexibility in the initial stages of skill development and also recognized that an individual may be attending a learning experience with the intention of working on their own time. It can be concluded that the informants perceived that methodology of instruction should be flexible and tailored to the individual but with guidelines provided.

Is a mainstream or specialized program preferable for physically disabled adults attending high technology learning experience? The informants felt:

> A totally integrated program that is available to anyone because there you get both physical and social integration, and that is where you are going to change attitudes.
>
> It should be mainstreamed--no question about that at all.
>
> It should be mainstreamed in theory.
>
> I think there are arguments both ways. Obviously I wouldn't be in the business I am in if I didn't believe more strongly in the mainstream. That is not to say there are not individuals who wouldn't benefit in a sort of a less mainstreamed environment. I am talking a mainstreamed environment as opposed to necessarily the class.
>
> I can be very emphatic about that in terms of idealism. Ideally I think—yes, it should be mainstreamed. No question about it. I believe in the concept that normalization is a goal, and integration is a process. Rather than a P.H.O.E.N.I.X., I think we have to convince people that that kind of flexibility can be built into a Grant MacEwan program. I feel rather strongly about that. I never believed that P.H.O.E.N.I.X. was the answer. I believed that P.H.O.E.N.I.X. was a step somewhere on the continuum towards mainstreaming.
>
> Ideally it should be on an existing campus providing the facility can be adapted to it knowing there are going to be some special needs. Certainly they are going to have to be integrated on a work site. At the same time,

> we have to remember that for people starting off who have been sheltered for a long time, it might be too much of a shock to dump them in university with 20,000 people wandering around when they haven't been out in a situation like that.
>
> Mainstream where possible.
>
> Mainstreaming is my first choice.
>
> I think, without question, people now are not talking about specialized schools. I think the hierarchy that one wants these days is first of all generic services of all types making themselves accessible and accommodating persons with disability. A second level of intervention is the modification of that generic system perhaps by external systems in order to make those accommodations where they can't do it totally on their own, and then a third level would be starting to design something that is specialized to persons with disability within the generic system, and last would be a separate segregated kind of program.
>
> I see a tremendous amount of physically disabled people being able to fit into the mainstream, and I think they would prefer to be there, and there is really absolutely no reason in the world why they shouldn't be there. You probably do come across some people with a degree of physical disability that is much greater, and possibly they would have much more difficulty fitting into the mainstream.
>
> Mainstream.
>
> I see a need for mainstreaming as much as possible.

The informants reached consensus that it is preferable to mainstream physically disabled adults in a high technology learning environment. Nonetheless, many of these informants also recognized that some individuals, particularly those who are severely disabled, may have difficulty in such a setting. As one informant suggested those who have been sheltered may have difficulty adjusting to a large campus with a large student body. However, mainstream programs were the first choice of the informants.

Therefore, it becomes critical to investigate how the informants perceived the mainstream environment could be altered to accommodate physically disabled adults in a high technology learning experience. They recommended:

> I think you should try to accommodate every person who feels they want a higher education or higher training. If they are so severely disabled that they cannot keep up in a regular classroom, I think they should still be in the mainstream, but perhaps you do have to segregate some portions of the program or some portions of the instruction.

I guess it is almost like a democracy. If a person coming into a mainstream setting is able to be accommodated so that they are not interfering with the progress of others in that setting, and there may be a degree of interference that is allowable, then they should be mainstreamed. We (mainstream systems) could be a little more flexible, curriculum could be more flexible, programs could be more flexible so that individuals can participate in portions of programs and do the rest at home or whatever. I don't think we have tried all the options. There could be more flexibility in the time allowed for them to master something.

I think the mainstream systems have to be more flexible, particularly with respect to time. For example, a four-year university course could be spread over six years. We still need to keep working on accessibility too.

The way we have managed to erode the physically disabled into the generic systems to date has been through pilot projects largely. This method has led to the development of ways the educational systems can accommodate them. I think philosophically the system will need to develop whatever it needs to develop to accommodate those individuals. There may be freedom of rights legislation that will force accommodation in the generic systems.

Mainstreaming, integration should be attempted across the board. Where it is not possible, we will have to set up some specialized schools or programs. I am not sure who should determine whether it is possible or not. We certainly need more consumer input. We certainly need some graduates—disabled persons having a lot of input. If we are attempting integration, I think it is perhaps best to utilize or to integrate the least disabled first and then continually work up to taking in more difficult or more specialized cases. A pilot kind of thing.

I would like to see most of the physically disabled mainstreamed. I think it is unrealistic that we will ever achieve that because of some of the disabilities, the severity of disabilities and the life support systems, but where possible, I would like to see people mainstreamed. I would like to see them obtain their support systems, like Students Finance, the same way as everybody else. Then I think government should look at covering those costs that are directly attributable to the disease; that is the costs associated with the disability.

I think mainly just encourage the direction that is being taken right now—making sure that they are physically accessible and transportation systems are in place. We would have to be fiscally responsible to the taxpayer, and there is always a big gap between what we would love to have for everybody and what is practical. At sometime we have to ask whether the cost is worth the end result, and it sounds terrible when you talk about improving the quality of someone's life. We have to make those decisions. Because if we were really improving everybody's quality of life, then we would buy everybody a coloured T. V., a microwave oven, a V.C.R., a new car every year, and we do that with government funds,

> but there has got to be a limit. The government can't be all things to the disabled because I think there has to be that balance.
>
> It is sad to me that we can find a way to mainstream programs for mentally handicapped people to the extent that we have, and still flexibility for physically disabled people in a lot of those high-technology areas is still in the dark ages as far as I am concerned. I would like to see all physically disabled people, even somebody with life support systems, whatever, mainstreamed. It is an evolution too that can happen. I say mainstreaming is the goal. In the seventies, in the sixties, the compromise would have been to have specialized training centers--the P.H.O.E.N.I.X.'s. I think the compromise in the eighties is to take a facility that already exists like Grant MacEwan, like S.A.I.T., or N.A.I.T., and possibly individualize a program for a group of people in that setting. You begin to slowly change adaptations, slowly change attitudes, slowly change the environment. I don't think you suddenly say the whole educational system is going to accommodate everybody. We need to begin slowly with pilot projects.
>
> I don't think we can fool ourselves in the sense of taking somebody who is extremely disabled to the point where they cannot work in what you are training them for in the work environment. Let us not fool somebody by bringing them in and saying you can be in the program because you meet the prerequisites if there is no real viable employment opportunity. Once we take them in, we want to accommodate them to the degree possible.
>
> I think more of what is already started. One of the big problems is the physical geography of places like universities, N.A.I.T.'s, and places like that is that their training rooms where lectures are held can be rather far apart and given our climate, there needs to be interior access to all these things. The physical design of buildings could be improved, particularly at the university. I think all the departments should be joined by some sort of wheelchair accessible pedway that is covered in.
>
> I feel that every place of higher education, every place of education in this entire province should be totally accessible to physically disabled people. Everything should be integrated so that disabled people can take part in their education along with everybody else. I feel our transportation system has to be upgraded.
>
> We have to stop having special everything--special clauses within our human rights code which say you cannot discriminate against a person with a physical disability. Why would you want to? So we all have to start assuming that the person with a disability is part of the community all his or her life through choices, just as anybody else is; so whatever system we design has to be something that is acceptable across a total population.

The informants want to strive for integration of physically disabled adults into the mainstream postsecondary educational institutions. One informant suggested that all the options have not been tried. Flexibility, particularly relative to time, should be developed to a greater level. Two informants emphasized we should continue current directions. One of these informants suggested at the same time that we need to be responsible to the taxpayer. Three informants felt that change should be instituted through the use of pilot projects. One informant talked about a gradual change in adaptations, environment, and attitudes. In conjunction with this thought, another informant discussed a continuum approach whereby the least disabled were first accommodated, and then the system would gradually work up to accommodating the more severely disabled. Several informants reiterated the need for a greater degree of accessibility and improved transportation. One informant talked about the use of pedways particularly in environments like the university. In attempting to integrate disabled people, one informant felt the government should be responsible to cover the individual's costs related to the disability. Consumer input was mentioned and should be utilized by the generic systems. One informant cautioned that the generic systems may well be forced to accommodate, to a greater degree, the physically disabled through freedom of rights' legislation. Therefore, they need to act more quickly on this issue. Nonetheless, another informant suggested the mainstream systems should not fool themselves or the individual if there is not viable employment for which we are training the individual. One informant perceived that the generic systems should change their attitudes and assume the physically disabled are part of the community and stop the special everything syndrome. While some informants preferred to work toward total integration of all disabled individuals, the majority recognized a need for some segregated portions of programs or specialized programs. Generally speaking, flexibility, accessibility, transportation, and attitudes need to be improved and all options investigated on a gradual basis and possibly through pilot projects to integrate physically disabled adults into mainstream postsecondary systems.

As stated by one informant, and generally agreed to by the others, it is unrealistic to expect total integration of all physically disabled adults into the mainstream programs. Therefore, the need for some specialized programs for the severely disabled appear necessary. The question of how they should be developed and administered needs to be addressed. The informants perceived:

> I don't want any specialized schools. Let's not create the special schools and work with what we have. I think we are moving toward something like a special needs division in the generic systems. I think as more students come into the system, there is a need for more than one person to handle their needs. If you only have ten people come in, maybe one counsellor is okay. As you have younger people coming up through the system and placing demands on the regular system because they have got used to that, you are going to have to have a division in the system which has the expertise. You would have a division which would be knowledgeable on where they can access equipment and have say a list of volunteers who take notes.
>
> I would hate to see a specialized school. I think we need specialized classes within some schools. We should use something like pilot projects and have a coordinator available for consultation. We may need a specialized wing where classrooms are designed for them.
>
> No, I sure don't want any more specialized schools. I feel it would be wrong and that we should not build any more what I call disease palaces for physically disabled people. Everything should be integrated so that disabled people can take part in their education along with everybody else. We need individual program planning to meet the needs of the individual. We are probably going to have to have a group of professionals, along with disabled people, who are going to have to pave the way, and there is going to have to be a special office in the mainstream schools whether we like it or we don't. We will need a special office or department to move in with their expertise.
>
> At P.H.O.E.N.I.X., I saw the confidence boosting, the sharing, the caring--all those sort of intangible things that occurred there that were certainly not in any objectives, and I feel it was a great strength of that program, and I don't see how it could happen in a big institution where the disabled student is really a minority. I can see in my mind's eye a sort of satellite campus. It should be attached to an existing campus--a mainstream facility. Something similar to what happens in the elementary schools now with the regular curriculum but with the addition of resource rooms and learning centers. I would see it as a place where some people would go through for a certain length of time on a contract, and at a certain point in time, knew they were going to be mainstreamed.
>
> The training should be hooked as much as possible to using the resources of existing institutions. I think using a continuing education approach is

probably where you would have the most flexibility. Let's face it, institutions are by and large quite rigid, and that is acknowledged, and yet there are a number of people who would use the sort of sheltered facility, and it becomes one of just gaining confidence for the next step. So I would say organizationally something that would fit the continuing education mode. A severe C.P., for example, could still be in some of the regular accounting classes, but he may not be in the same lab. He may get different tutoring. It will take a while before we get there, but that is how you chip into it. A lot of things have been tried in continuing education and then eventually became regular. A severely disabled training program, something like that. It is for that 10 percent of the disabled population. There is roughly 10 percent of the population that are disabled in some way or another. I am saying there is 10 percent of the 10 percent that we are trying to address here. It has got to be a fluid kind of thing.

I really don't see in the eighties--I really don't see the continuum being some segregated specialized facility. I do see a need for a specialized component in the mainstream institutions which is definitely a recognition that what we would like to see hasn't yet happened, if you know what I mean. But I think that in the eighties in Alberta we don't need to go the route of segregated facilities. I think we can say, "Let's develop some pilot projects somewhere, and let's demonstrate that in the mainstream that this is possible." It is called utopia. It can happen.

As much as possible, no, we should not have special schools. I think the idea of integration is a great idea but if it starts affecting the teaching capability that is provided to my children, to a large extent then, I am not for it because they have just as many rights as a handicapped person. I think sometimes we go overboard saying we have got to protect the rights of the handicapped, which I support 100 percent, but we can't be put in a position where we give them more rights than other people. What we need is a satellite or a department which is identified with or part of an existing educational institution which will give it some credibility. The problem P.H.O.E.N.I.X. had was establishing its credibility. Maybe if it had been tied with the N.A.I.T. computer program, it might have been more accepted. This is not a fly-by-night outfit.

I would not like to see a specialized school as such but would like to see it as part of an existing institution. We would have special classrooms for those individuals who cannot participate in regular classrooms. It would be a part of the generic institution. You are seeing disabled student services at all the educational institutions, and I think these could be expanded to include more services. There is no point in re-inventing the wheel. You may as well have it in a student service division that could provide services to all the different faculties or departments.

The important thing is that we don't segregate people. There should be a resource that serves the generic systems. It needs to support two groups--the person who is disabled, who says I need something to overcome a barrier, and a support to instructors and counsellors, who don't know how to deal with this person with a disability. That's fair ball; I don't have a problem with that. The resources, though, need to be there to

> provide help. What the disabled student needs is first of all access to a program and secondly instructors who are knowledgeable to some degree about their disability.
>
> Any special provision should be part of a mainstream campus, maybe a division or department to look after the special needs of the physically disabled student.
>
> The severely disabled need to be mainstreamed in part but need to have the major technological support and instructional expertise located in a central area--a disable-student services or division.
>
> I don't want any specialized schools. The existing institutions need resource centers to offer expertise and special adaptations to the system.

The informants do not wish to see the development of segregated, specialized institutions. While they chose different words to describe their perceptions of what ought to exist for the severely disabled such as special office or department, satellite campus, something that would fit the continuing education mode, student services division, special needs unit, disabled student services division, resources center, special needs division, and specialized wing, they were united in their concept. It can be concluded that the informants perceived the establishment of a unit or division to care for the needs of severely disabled adults in the mainstream postsecondary institutions. Administrative details and particular services offered by such a unit or division were not addressed by this study.

Should the sheltered workshop kind of concept exist? If so, how should it be administered?

> There is still a need--at this point in time, there is still a need for some sheltered workshops. I think it would be nice if it could be part of the main system. It may need to be a special section of that division. That would be the ideal.
>
> It has such an ugly sound; doesn't it? I think there is a place for, I guess, the model. As long as there is some contact in what they are doing with the working world, and they are not doing things that make them lose self-esteem. A sheltered workshop in conjunction with a specialized division would be an interesting idea. It would mean those individuals would leave home, and some might be able to move from one setting to the next. That might be a good environment.

> We still need them. I think it would be better if they were supervised by a total system and not a separate entity.
>
> I don't like the concept, but there are those who need them. It is better than sitting at home staring at four walls. They should be closely supervised and scrutinized and may be--could be a part of the disabled student division I envisioned.
>
> Yes, we should have sheltered workshops. It would be nice to have them more integrated than they are now. A possibility would be integration with the satellite department looking after special needs of the severely disabled in the generic systems.
>
> Another tough one. If they are defined, yes. Administration--I think I better pass on that. I don't know enough about that area.
>
> If it were an integrated work experience--I envision a for-profit work setting, and it would hire people based on their capabilities. It could be a part of the specialized component of the existing institutions.
>
> Don't call them sheltered workshops. Call them an entrepreneurial kind of thing. It would be ideal if it were a part of the facility for the severely disabled.
>
> I think there is a place for them. I could see it being a rather nice addition to a campus and part of a specialized wing. Let's not call it a sheltered workshop, but environment assisted working or environment assisted learning or something like that.
>
> No, they have to go.
>
> Yes, there is a need for them. They could be an expansion of voc rehab centers. Probably the best would be the way Social Services does it, and that is get a group to operate it. Get one of the groups like the Paraplegic Association to undertake the operation of it. I don't see employment attached to a postsecondary institution. It is not their bag.
>
> No.

The majority of informants perceived a need for a sheltered workshop concept. These informants felt the sheltered workshop could be a part of a special needs unit or division of a mainstream campus and, therefore, administered by it. One informant felt it could not be a part of a postsecondary institution but could be administered by an association like the Paraplegic Association. Two informants were opposed to the sheltered workshop concept and would not have them. It can be concluded that the majority of informants perceived a need for sheltered workshops and envisioned them administratively falling under the umbrella of a special needs division of a mainstream campus. Close supervision was generally advised.

The needs of the homebound need to be addressed as well to cover the gamut of physically disabled adults who may wish to access a high technology learning experience. Should the homebound be facilitated with respect to educational opportunity which could lead to a cottage industry concept, and if so, how should such a program be administered? The informants contended:

> Yes, they should be provided for. It could be run out of a mode like continuing education or special needs.
>
> Yes, the homebound require an opportunity to access our educational systems. It should be administered by the generic systems, possibly through a special division. With respect to cottage industries, if that is what the general population wants, sure; I think we are seeing a return to cottage industries across the general population because of the whole employment picture. I see a lot more people starting their own businesses in their own homes.
>
> Yes, some people are going to have to stay at home. We do some of that through Access now. It should be part of the existing generic systems and administered by those in special needs.
>
> The homebound need to be provided for. Again I am not sure, but I suspect it could best be administered by your people in disabled services or special needs or whatever.
>
> We shouldn't forget them. However, I think human contact is very necessary, and I would like to see the distance delivery learning enhanced by regular visits from a tutor--possibly two or three times a month. I could see it being part of that special division. I could almost see classes being televised into that home with the person learning and working right along with the class and asking questions to the instructor, and that would take very sophisticated equipment. Then they could probably work from home.
>
> Yes, that is definitely part of the nineties concept. It could be tied into the existing systems.
>
> Oh, I think so. The overriding thing would be cost. Certainly with a computer and possibly a monitor in their home, yes. It would be part of that special wing or division. As well, the cottage industry concept can give some meaning to the individual's life.
>
> We have to be doing more for the homebound. I think there is so much that has got to be done right now, and I just don't know where to start. I

> am not sure what would be VRDP's mandate. VRDP clearly states they are an employment-related program. If we are going to be going out with modems to the homebound, probably most of the time, it is going to be for education purposes rather than for employment-vocational purposes. In the future, it could possibly lead to vocational or contract work, but I think initially it would certainly be educational. I am not sure that that would be their priority right now. However, in the future I think that probably everybody will have some of this high-tech equipment in their homes that costs us a lot of money right now. The existing systems have to do more, no question.
>
> The homebound are not being given adequate attention and government cutbacks aren't going to help. Their needs should be cared for through a special needs division.
>
> Yes, using computer hookups for the homebound is an excellent concept. I think there are people in homes who could utilize that. The special needs personnel could administer it. I definitely could see it evolving into a cottage industry contract approach.
>
> Oh, just fill their rooms up with everything. There is so much. There is a student who has his own line to the university who also comes to the university. There are times of the year when it is better for him to work at home. The disabled students section can take care of that. An individual might get an English degree that way and become a writer at home.
>
> Once the homebound have the equipment, they can access existing programs, say at Athabasca University, through that. I think a contact person is essential. It is fine to access programs by technology, but we all need to interact with people at some point. You need to have the sit down face-to-face interaction. A more extensive program for the homebound could be provided through a special needs division.

Consensus was reached by the informants that more provisions need to be made to accommodate those who are homebound. The use of high technology can be effectively used to meet this need, although it is presently costly. Nonetheless, two informants cautioned that while technology is beneficial, human contact is essential to enhance the learning process. Four informants discussed the value of the cottage industry concept to the homebound, particularly with respect to self-concept. While not all informants addressed the issue of administration, those who did suggested provisions for the homebound could fall under the umbrella of a special needs unit or division. It can be concluded that the informants felt that the homebound should be provided for to a greater degree with respect to high technology learning experiences than they presently are and that such a program could fall under the umbrella of a special needs unit or division in a mainstream postsecondary institution.

The informants expressed a need to accommodate physical disabled adults at all levels of disability in high technology learning experiences. The vast majority of physically disabled adults should be accommodated in the existing mainstream postsecondary institutions. Continued effort should be made to modify the system to more fully meet their requirements, particularly with a view to flexibility of presentation and time. For the approximately 10 percent of physically disabled adults who are severely disabled, specialized provisions should be made for them in the mainstream setting that would fall under the umbrella of a special needs unit or division. This would include a sheltered workshop concept, as well as training for the homebound, which could lead to a cottage-industry activity for them. While administrative details and course offerings have not been addressed by this study, an overall picture of the needs of the physically disabled in a high technology learning experience is provided. Once again, this experience could be one directly related to the field of high technology or could entail the use of high technology as a facilitator in any unrelated field.

Support services are often critical to physically disabled individuals in accessing a learning experience. Should support services be provided by the learning institutions? The informants maintained:

> I believe there are disabled persons who definitely need support services. I don't know if it is the obligation of the school of learning to provide them; I more think it is the obligation of perhaps Social Services to make sure that support services are there for people no matter what they are going into. Both technical aids and personal care aides need to be available. They need to be there so that disabled people can continue higher learning. It is a big concern.
>
> Support services could be tied to the student's costs. The government should pay the institution for whatever costs come with each student according to their needs. If a person doesn't have a personal care aide to help them at lunch time and with washroom needs, and this might exclude them from the program, then I feel that it is important that those resources are available. I would think that if they are not in the program,

> they would have that kind of assistance anyway wherever they are, so why not just shift the cost to the new location.
>
> Yes, I think so. A lot of people are institutionalized who don't need to be if support services were available. They could be receiving training and becoming active in the community.
>
> In theory there is no question that it should be supplied, and I guess the debate is how much society can afford, and who pays for it? There are limits to resources, but I don't think there is any question that that is the direction we should be striving toward.
>
> Definitely. Support services should be in place to enable disabled individuals to participate in learning experience.
>
> The support services are needed, but how they are arrived at is another question.
>
> I don't only believe that the educational institution ought to have support services, I believe the community ought to have them, and I believe the person's residential facility ought to have them. I think personal support and individual support structures ought to be tied to the individual, not to a program.
>
> Yes, they should be provided.
>
> Yes, they should. I believe that if I need the use of a telephone, I should have to pay for the black telephone. But if I need special equipment to operate that telephone, then I should be able to receive some help.
>
> That should come through the institution, whether it is supplied by Advanced Education or Career Development. I think that it should be available at the institution for the individual.
>
> Yes, they should, but who provides them? At the university, for example, if a student identifies that they need assistance in personal body functions, there should be something like that available. Ideally there should be some mechanism through VRDP funding or some community agency that provides that type of service at minimal cost or no cost to the individual.
>
> I certainly think there have to be support services in place. That is very much of a given, particularly when you look at the more severely disabled.

The informants were of one accord in expressing their belief that support services should be available to physically disabled adults wishing to access high technology learning experiences. These should be available as required as they relate to the individual's disability. The question of who should provide these services, however, appeared to be more difficult and complicated.

The foregoing, therefore, leads to the matter of funding. Should funding be provided and by whom? The informants suggested:

> My personal view is that the cost of removing barriers the physically disabled may have should be the responsibility of the general society and not the individual. I see societal costs being those strictly related to barriers. These should be provided through the general tax structure of society. The educational institutions should have the wherewithal and the support services to accommodate disabled persons. Needless to say, we don't want to be funding programs that create dependence. But if the individual who is trying to move toward independence is confronted by a barrier they can't overcome on their own, then the funding or resources or whatever should be there to help overcome that barrier.
>
> Ideally it should be part of educational funding per se. It would be nice to say that, Bernice, but I don't think it will come that way for a long time.
>
> It is there to the general population. As it is to the general population.
>
> Yes, I think with what is coming up with human rights and equal access, postsecondary institutions will be faced with having extra services available for disabled so they do in fact have a coordinator for disabled persons and have some access to funds and equipment for them.
>
> The same as any other program, sure. The only difference is that our places of higher learning are going to have to ensure that their classrooms and facilities are accessible to disabled people. A wheelchair can't get up steps.
>
> Yes, and I would see the funds coming from the regular sources. I would see the business community making a commitment--more community involvement, much more.
>
> Absolutely. The ideal is that the dollars would be with the individual and would be very much a part of the whole assessment structure in terms of what his needs are.
>
> I guess I like the existing funding structures in that there is some special funding for handicapped. I don't think it is feasible to say to a lot of handicapped people, the only way we will give you training is through a Students Finance Board loan. I think we have to recognize that they have some special needs, and they may need special funding programs.
>
> Many or most of the support service training things for disabled individuals are funded by the VRDP program. The economic scene right now is that governments are trying to reduce expenses, expenditures. Funding for the disabled is inevitably going to be a combination of private

> and public sector funds, dollars. I see the private sector becoming more involved.
>
> I think we should, yes. The educational institutions would have to get financial assistance from the government.
>
> It should be. Disabled individuals are funded in grade school, and adults are funded through the Students Finance Board. I do see private industry being another alternative. Private industry has been asked more and more to do more and more, and they seem to respond to certain motherhood kinds of issues and certain needs that are commonly agreed upon.
>
> It is not an ideal world, and we are wanting an ideal system. But again for quality of life, I think a person deserves whatever it takes to get that. It costs a great deal to keep people in institutions so if some of that money could be used to help people become independent, it could be an advantage both to society and the individual.

The funding of high technology learning experiences for physically disabled adults should be funded as perceived by the expert informants. This is particularly so to remove barriers physically disabled adults may experience in accessing such learning experiences. It was recognized that funding resources are limited, but nonetheless equal access should be provided. One informant suggested that human rights legislation may enforce such funding in postsecondary institutions. Three informants noted that the private sector may also be an alternative source of funds.

Category 8. The Possible Benefits That Physically Disabled Adults Could Derive From A High Technology Learning Experience.

Five concerns were probed with the informants to ascertain the possible benefits that physically disabled adults could derive from a high technology learning experience. If time and resources are going to be expended in developing a high technology learning experience for physically disabled adults, it is desirable to know if such an experience is of benefit to these persons. With respect to an improved self-concept, nine of the informants simply replied, "Yes," as to whether or not an improved self-concept would be a probable benefit to such physically disabled adults. Two others briefly replied, "Yes, definitely, I do, yes," and "Definitely." One informant elaborated by stating:

> Oh, sure and I guess I have got to say I see that in everybody. Everybody who is successful is going to think well of themselves.

The informants perceived one benefit to physically disabled adults attending a high technology learning experience to be an improved self-concept or a greater feeling of worthiness.

Would a plausible benefit to physically disabled adults attending a high technology learning experience be a greater degree of independence through employment, and could such employment be fulfilling? The informants felt:

> Yes, certainly. Hopefully, any of us who are working are there not just for the remuneration but because it is self-fulfilling.
>
> Oh, sure, yes, hopefully. Independence is a big issue in the province because no matter how well paid a disabled person is, there are added expenses because of the fact they are disabled, especially if you require equipment that isn't covered under existing programs and if you are living independently and you require personal care. That takes a big chunk out of a person's pay cheque. It worries me that a lot of disabled people are going to places of higher learning, but they are finding out that they can't afford to get off social assistance or AISH because of the benefits they gain. We have got to develop our programs to foster independence and not dependency and right now a lot of government-run programs are fostering dependency. But, sure, it will be fulfilling even if they only achieve partial independence.
>
> Yes, if they have been getting themselves to and from school and looking presentable and this sort of thing. I would certainly hope it would be fulfilling, yes.
>
> Yes, and it certainly would be fulfilling for the physically disabled.
>
> Yes, and also just having coped with a new learning experience fosters independence. That would be so rewarding, fulfilling.
>
> Yes, and certainly fulfilling. Nonetheless, you have to look at realistic figures and 75 to 80 percent of all physically disabled persons are unemployed or underemployed.
>
> Yes, definitely. If you have employment, you have dollars. If you have dollars, you go out, and you do things which give you confidence, maturity, and growth. It should certainly be fulfilling. If it isn't, they have already gone through something, and they are not afraid to take another challenge in another field or whatever.
>
> Independence--very much so. It certainly should be rewarding.

> Yes, and I think a lot of handicapped individuals are in the position where they are having to take, and they really want to give, and they really want to contribute to society, and they really want to earn their keep; so just that aspect of fulfillment is really important.
>
> Yes, definitely, and fulfilling.
>
> The physically disabled really want to be independent, so, of course, it would be fulfilling.
>
> Yes, yes. Oh, absolutely, it would be fulfilling.

The informants agreed that a benefit to physically disabled adults attending a high technology learning experience would be independence through employment which would lead to fulfillment. One informant cautioned that some government programs were stifling independence and often unwittingly fostering dependence.

Might a more rewarding social life be a benefit that could be derived by physically disabled adults engaged in a high technology learning experience? While two informants merely replied, "Yes," to this question the others suggested:

> Yes, and particularly if you are in an integrated program, you are going to be meeting more people, and as a result, there is going to be more awareness, more acceptance, and I think social life is going to improve.
>
> Well, I don't think there is any question about that because everything is tied together.
>
> I would think so because going to a postsecondary institution is in fact a social experience. I think some people learn more in a social experience than they do in a classroom. They get used to meeting new people in new situations, and I think that would carry over once they start working so that they have developed some social skills that they can utilize. They know they can go to certain places and do certain things. They can go to the Citadel, the Jubilee Auditorium, or whatever and join in things that interest them.
>
> That can be an offshoot. If a person has a good self-concept, self-worth, and has meaningful things in their life, a social life results.
>
> Just getting out, yes.
>
> Oh, definitely, definitely, yes.
>
> I would say you probably would have an opportunity to socialize. I wouldn't say necessarily more. As to whether it is improved, I don't know.

> If we are talking about enhanced socialization and increased social contact, then the likelihood of having more successful interaction and more experience and all of those kinds of things are greatly enhanced. I mean you don't get them by being isolated and not participating. The only way you get them is by getting out and getting involved.
>
> Well, I think that when one looks at where one works and where one socializes, the choices of schooling and career can influence the clothes you wear; where you go for holidays and if you go for holidays; whether or not you have a bank account, whether it is in the red or the black; whether one is saving for the extra things in life like a vehicle, and trips, and this sort of thing; and where you work will often reflect on what you do with your leisure time. It will also reflect, sometimes, on who you marry, what sort of activities you get into. Would a disabled person become a scorekeeper for a community sports team, for example, and be out there in the community doing their bit? Some are doing that anyway, but the majority are not.
>
> Yes, it would. It is going to improve a person's social life because they are going to feel worthwhile.

All informants perceived that attending a high technology learning experience, particularly if this leads to a career, would enhance an individual's social activities. One informant was uncertain whether such activities would actually improve one's social life while the remainder felt improved socialization would be a definite result of such an experience.

If a physically disabled adult is acquiring an education or working and has a positive image of themselves and is involved socially, would this result in a greater acceptance of the individual within the community? Could this be another benefit of attending a high technology learning experience? The informants elaborated:

> You know that is a good question because, and this is also a terrible thing so say, but I will go to a shopping center, and people will come up to talk to me. A lot of people start off by saying, "Oh, it is too bad that you are in a wheelchair; what do you do with yourself all day?" Depending on what kind of a mood I am in, I will possibly let them go on, and then I tell them what kind of education I have, and what I do with myself all day. It is kind of cruel, but you certainly get your point across. No question—the community does look at you more positively if you are involved.
>
> I definitely think so.
>
> I don't know if the community has a unitary response but if they know you are active and involved, no doubt most people would be more accepting of the individual.

> I would have to say our whole societal image of a person who goes to school and works is different from that of a person who does not work whether that person be getting AISH or sitting home getting nothing. We have a more positive image of people who work. Along with that comes the status of how much money you make. So you could be a bank teller, or you could be a bank manager, and the status is going to be different.
>
> Yes, very much so, very much so. If you show that you are independent, they don't look at you as being a disabled person so much any more. They don't see the disability. They see you are a person who is providing for yourself.
>
> Yes, that is for sure.
>
> Certainly, yes. As you see them involved going to school and working, you realize that just because a person is in a wheelchair, doesn't mean you can't touch them, or you have to stay away from them; they are people.
>
> Yes, I think society is more receptive to people who try to help themselves. They are more receptive to somebody getting UIC if they are trying to get a job rather than waiting until UIC runs out and getting a job. So, yes, I would think the community would be much more receptive to them doing that and would be more receptive to the government giving them more aid to help them to help themselves.
>
> Sure, I think everything is interlaced.
>
> Yes, and their own acceptance of themselves. If other people are accepting them, that will improve their own self-concept and their own acceptance. It is just a cycle.
>
> Yes, that is a big thing. Like the students who get to know some disabled students in class, later on they are possibly going to be managers and supervisors hiring. If they had a positive experience with the disabled person, it is going to be much easier for them if they see somebody rolling up in a wheelchair. So we change society by exposure, by giving them experience and seeing that person as human too. That is the side of them we don't see much of.
>
> Certainly, you are a participant. You contribute to social programs; you contribute to tax dollars; you contribute to whatever, rather than being an expenditure.

The informants felt strongly that physically disabled adults who were actively engaged in a learning experience or working were accepted much more in the community than if they were not involved. The general tone of the perceptions of the expert informants was that society is more accepting of those who are working toward independence, or who are independent. They tend to see you more as another person, and as one informant suggested that they are less likely to notice the disability.

Two categories emerged as significant during discussion with the informants and subsequent data analysis. These categories had to do with attitudes and the concept of an equipment resource center.

Category 9. Attitudes And The Physically Disabled Adult.

Four informants particularly noted that societal attitudes toward the physically disabled are improving. They suggested:

> I have seen a lot of changes in society's attitudes. There are still individuals who have their own adjustments to make because it is new to them, but I think the International Year of the Disabled was good and did an enormous amount. The thing that is happening in the media, and certainly needs to be happening, is helping a lot where we are seeing advertisements and what not for disabled individuals. We are seeing a lot of people working to improve attitudes.
>
> I think what is happening is that we are seeing a greater awareness by all people of disabled persons, no matter how severely disabled they may be. This happens because now everyone is brought up together in the school system, and so there is much more acceptance. When they are brought up with it, they don't see a problem at all. Many attitudes are simply a lack of experience.
>
> Negative attitudes are lessening. As schools have some handicapped kids in their classes, I think it helps. I relate to my kids who had a girl in their play school who didn't have any arms and was having to use her feet for everything. It is no longer strange to them, and they accept it.
>
> I think attitudes are improving, but I think a person has to face what I would call attitudinal barriers.
>
> The nicest thing I have ever encountered was a little girl who said to her mother, "Mommie, why is that lady in that thing," and she said, "Why don't you go and ask her?" I think that probably made my year. When you start hearing that, that is the kind of awareness you want.

From the foregoing comments, it can be concluded that negative attitudes still exist. In support of this contention, several informants stated:

> I think employer attitudes are the biggest obstacle, and they are not something you can touch and define. They are not like a piece of concrete. They are not tangible, but they are certainly there. It is often the

> employer with a physically disabled person in their family who is most likely to hire a physically disabled person. Physically disabled people seem to show a good attendance rate; they don't seem to jump around so much and when they are committed, they are committed. They are very glad of the job, and statistics show they are very reliable employees. Yet employers often feel they will have hassles if they hire physically disabled people.
>
> I think the physically disabled encounter people who don't quite know how to deal with them. The typical example of that is asking the companion of the wheelchair person what they will have in a restaurant. I know they encounter people who don't tolerate them very well. They should be out of sight and out of mind.
>
> This is a funny story. I travel quite a bit, and it really used to bother my wife when we went to the airport, and the guy behind the ticket counter used to ask her if I could transfer, feed myself, talk, and so on. I talked to a friend of mine, and he suggested I do what he does. So the next time when this scenario began to repeat itself, I said, "There is no sense talking to her, she is deaf." People are nervous, and they don't know how to react, so they ignore you.
>
> The instructor's attitude of low expectations can be difficult to overcome. Also unwillingness to try something different—why should I have to use a sign-language interpreter in my study hall signing to an individual while I am talking? It is too distracting.
>
> I think that sometimes the general public think that when you are in a wheelchair that you are slow upstairs to put it politely. They are uncomfortable with people because they don't know how to react to them or interact with them, and they haven't been around them or exposed to them.
>
> Children love to come up and ask me about my wheelchair. Still I have mothers who yank the child away, and automatically they start creating the attitude that it is not right to talk to these people.
>
> The attitudes of many of the educational institutions is not positive. There is not a willingness to be flexible. My instructor who taught me to fly and be a pilot could have said, "You can't do this because you are in a wheelchair; let's stop wasting our time. " Rather he said, "How do you plan to do this; how are you going to overcome the rudder situation?" We looked at the problem and designed and worked out the controls to be able to do it. When I went to another flying club, their response was, "We don't have any aircraft with hand controls, and we don't know how to get them." It was over and done with in five minutes conversation. That happens all too often in our educational institutions.

It is apparent from the foregoing comments that negative attitudes toward the physically disabled do continue to exist.

The attitudes of the physically disabled may well determine how others react to them and how they feel toward themselves. Three informants observed:

> If you are with a person who is disabled and talking to them and ten minutes into the conversation when you are looking at that person you still see the disability, then that is the disabled person's fault.
>
> Disabled people have to develop a positive attitude and realize everybody experiences failures. They have to learn to treat failure as a learning experience and go out there and try again.
>
> Quite often the difference between success and failure is one of attitude. You often see one person who is severely disabled out going to university or N.A.I.T., and another person with the same disability sitting at home on AISH feeling they are unable to do anything.
>
> Some physically disabled people feel the system will take care of them, and they are not utilizing what they have. They are taking advantage of the system. It is an attitudinal thing.

Attitudes on the part of the physically disabled can, therefore, affect those around them for good or for bad. These same attitudes can cause a physically disabled person to live life as fully as possible or sit home on AISH.

Two informants perceived that it is the responsibility of the physically disabled to make those around them comfortable. They stated:

> I think the disabled person has the responsibility to try to make others comfortable with them. I think too often the disabled person, rather than spending that time, just gets annoyed and wheels away. I think we really need to talk to them. A minute of our time will create some awareness that will go a long way.
>
> I feel there is a responsibility that the disabled person has too, and that is to educate people. Young kids, for example, want to touch buttons and play around with a wheelchair, and I feel disabled people should take the time to talk to them and, if they can put them on their knee and take them for a ride, they should because they are forming attitudes and perceptions.

From the foregoing, it is apparent that negative attitudes toward the physically disabled are improving but, nonetheless, still do exist. Attitudes of the physically disabled themselves can create negative or positive attitudes in others as well as themselves. Furthermore, the onus to remove negative attitudes lies with the physically disabled as well as society in general.

Category 10. Equipment Resource Center.

In the course of discussion with the informants, the concept of an equipment resource center emerged due to the excessive cost of much high-technology equipment and the difficulty of keeping up with development in the field. The idea that such a center could purchase and maintain the equipment for loan to the postsecondary institutions as they required it was perceived. The informants implored:

> I think it is very difficult for coordinators of special needs services to keep up with technological advances. There might be a way of sharing as we do here. I mean I borrow stuff from N.A.I.T. when I have the need and vice versa. I would like to see the administration of equipment separate from the curriculum and training operation. If somebody is able to concentrate on just keeping abreast of devices that work well in different settings and determine how to spend money on them, and then make sure they are dispersed and distributed appropriately on a loan basis, that would allow the training programs to get on with their business which is teaching. I can see an equipment resource center, a technological center, that serves the city as a whole and that programs can access. It might be a center that loans out stuff, but I think it is really important to share equipment and also keep track of how it works and how it is used.

> We have equipment here--some pieces that three years ago were considered, you know, no one else in Alberta had them—and today we are at the point where we are close to junking them. It is almost impossible for each institution to keep up with the latest in equipment. We need a more highly developed loan system. In part what this resource center would like to eventually do is develop a library and also network all libraries and all data banks that are available through the world. If you have a problem or need some equipment, we can access rehab data in the States or the NARIC data base which has a lot of specialized equipment. They are dealing with all kinds of technology. A data base called Advance Rehabilitation Technology Network is looking for sites in Canada right now. So the coordinator in the school could access this at our resource center.

> I see a centralized center, and we have already started that with our center (at the Association). I think it should be housed outside of the government. A good example is the Department of Education has a special learning thing where you can get equipment to facilitate learning for what they call special needs students, but the only people that can access it are teachers or school divisions, and the disabled person and their family can't access it. Give it to a volunteer organization to run. If ours goes, we have got all the capital funding already lined up in the community. We have got to bring industry into it. All our equipment on display is being donated on a revolving basis from medical manufacturing equipment companies, and it makes good common sense for them because

> that is another display booth. I see a centralized kind of equipment center happening. Where you are going to need government help on that is operation of it for the staffing component, but I think we can get the equipment donated by the manufacturers of the equipment.
>
> What our department is currently doing is purchasing the equipment and lending it to the postsecondary institutions so if it is not needed in one institution, we can switch it to another where another person could use it.
>
> I like the idea of there being communication between the institutions or between the user of equipment so if I have got a piece of equipment over here that is not being utilized, I can loan it over to N.A.I.T., and N.A.I.T. can do the same. In fact, I do have a piece of equipment on loan from N.A.I.T. right now. I think we have got to have catalogues of whose got what equipment and that sort of thing. As far as a central equipment thing owned and controlled by government, VRDP, I think it would be better if it would be in the hands of a private agency.
>
> I could see the government being involved in cost-sharing equipment. There would need to be some system set up to keep track of all this equipment and repairs and this sort of thing.

The seven informants who suggested the concept of an equipment resource center recognized the need for a more sophisticated loan system for the postsecondary institutions or, as one informant stated, for the physically disabled community. This center would keep records of all equipment and repairs to it. From the comments, it appears that an effort has been made by an association and a government department to institute such a loan system. Three informants felt such a center could best be administered through a private association or volunteer organization.

Summary

The following propositions summarize the perceptions of the expert informants:

> Proposition 1: Mainstream educational programs for the physically disabled, while improving, are generally functionally and attitudinally inadequate.
>
> Proposition 2: Specialized programs and services for the severely disabled and homebound are inadequate.
>
> Proposition 3: Motivation, attitude, career planning, availability of support services, and ability, not disability, should determine whether a high

technology learning experience for a physically disabled adult is a regular mainstream or specialized program.

Proposition 4: A high technology learning experience for physically disabled adults should be flexible relative to time and instructional methodology, accessible, supportive, and provide current high technology equipment.

Proposition 5: Learning experiences for physically disabled adults should be accredited and recognized as equivalent to regular mainstream programs.

Proposition 6: A high technology learning experience could create positive feelings in physically disabled adults.

Proposition 7: Success in learning may be more important for physically disabled adults than for the able-bodied.

Proposition 8: A high technology learning experience may be of particular value to physically disabled adults relative to independence.

Proposition 9: A worsening disability, a deteriorating economic climate, and the ability to perform functions previously not possible may prompt physically disabled adults to attend a high technology learning experience.

Proposition 10: While physical, psychological, and social barriers to attending a high technology learning experience have declined for physically disabled adults, they still exist.

Proposition 11: Physically disabled adults are prepared to do what is necessary for attendance at a high technology learning experience, i.e. attain prerequisites, relocate, acquire equipment, and take out a student loan.

Proposition 12: Success for physically disabled adults in a high technology learning experience could depend on motivation, attitude, and competence or ability.

Proposition 13: The more severe the disability, the greater are the physical changes and instructional flexibility required.

Proposition 14: High technology learning experiences for physically disabled adults should include career planning, academic prerequisites, a broad and varied curriculum, flexible and self-paced instruction with prescribed guidelines, and be an integral part of a mainstream campus.

Proposition 15: Regular mainstream programs should be the first choice for physically disabled adults attending a high technology learning experience.

Proposition 16: In order to accommodate the physically disabled, mainstream programs must be flexible in terms of time frames and instructional methodology, accessible, and exhibit positive attitudes towards them.

Proposition 17: The requirements of physically disabled adults are diverse because of the diversity in the nature and severity of their disability.

Proposition 18: Specialized programs and services for physically disabled adults should be integrated under a special unit or division of a mainstream campus.

Proposition 19: Sheltered workshops are required for some physically disabled adults and should be affiliated with a special unit or division of a mainstream campus.

Proposition 20: The homebound urgently require programs and services which should be affiliated with a special unit or division of a mainstream campus.

Proposition 21: Support services for the more severely disabled should be provided as required.

Proposition 22: Funding should be provided to physically disabled adults to remove barriers for them and for a special unit or division of a mainstream campus.

Proposition 23: Attendance at a high technology learning experience could give physically disabled adults an improved self-concept, economic independence through employment, a more rewarding social life, and greater acceptance within the community.

Proposition 24: The attitudes of physically disabled adults and of those around them are significant in developing their self-concept.

Proposition 25: The development of an equipment resource center is desirable.

This chapter has presented the data obtained from the expert informants in this study. Chapter IX will link the data presented in Chapters VI, VII, and VIII and provide a synthesis of the data findings.

CHAPTER IX

Linking the Data

The purpose of this chapter is to link the data collected through interviews with the three distinct informant cohorts in this study as opposed to the separate data presentations in the preceding three chapters. The propositions developed to summarize these chapters, as well as those developed to summarize the review of related literature, are synthesized to present a unified perception of high technology learning experiences for physically disabled adults. In this way a comprehensive understanding is developed to further conceptualize the problem, as related to the data analysis facet of problem structuring developed for this study (Figure 4.3) from the work of Dunn (1981:107-109). This synthesis is organized in terms of the eight specific categories listed in Chapter III, as well as three emerging categories concerned with the influence of attitudes, the need for sports and recreational activities in a high technology learning experience, and the development of an equipment resource center. The data are conceptualized as consolidated propositions which have been derived from the earlier propositions developed from the interviews with each informant cohort and the literature review. The consolidated propositions that conceptualize the data are listed at the end of each category. The earlier source propositions are noted in brackets.

Both convergent and divergent perceptions surfaced during the analysis of data. However, the vast majority of these perceptions were convergent rather than divergent. Such convergence of opinion is important for as pointed out by Fielding and Fielding (1986:52), "Suspicion and the need to back up one's arguments is part of the human condition, but consistency can be a powerful argument in favor of an interpretation."

Therefore, consistency will be used as a major criterion when interpreting and linking the perceptions proffered by the informants in this study. Consistency becomes a strong supporting argument for establishing trustworthiness. However, Fielding and Fielding (1986:58 and 59) recognized that: "What to do when items of data are in conflict is less obvious than what to do when one can find some coherent binding thread to link data from different sources." It may, then, be necessary to use data to identify points of divergence or dissonance. Miles and Huberman (1984:237) noted:

> A good look at the exceptions, or the ends of a distribution, can test and strengthen the basic finding. It not only tests the generality of the finding, but protects against self-selecting biases.

A unique idea may only be expressed by a few informants. Nonetheless, Fielding and Fielding (1986:68) conceded, "We are left with the abiding need to fit evidence to interpretation in order to resolve conflicting interpretations." In analyzing convergent and divergent perceptions, Miles and Huberman (1984:237) concluded:

> A time-honored, classic way to test a conclusion is to draw a contrast or make a comparison between two sets of things--persons, roles, activities, sites as a whole--that are known to differ in some other important respect. This is the "method of differences," which goes back to Aristotle, if not further.

Category 1. The Existence And Adequacy Of High Technology Learning Experiences For Physically Disabled Adults.

The three informant cohorts in this study agreed that mainstream educational programs for the physically disabled are generally inadequate. Nonetheless, all informants conceded that conditions were improving. The related literature review supported the view that physically disabled adults are being increasingly accommodated in mainstream institutions. However, the physically disabled adult informants recognized a need for further changes relative to curriculum and flexibility in instructional methodology. The significant other informants noted inadequacies in physical accommodation and accessibility and perceived that the degree of disability has a bearing on the adequacy of a particular educational setting. The expert informants observed inadequacies in support services as well as a lack of high-technology equipment and training in its use. Some settings still are not physically accessible to the physically disabled. The expert informants also reported that improper attitudes relative to the physically disabled still exist in many mainstream institutions.

All informants concurred that specialized programs and services for the severely disabled were virtually non-existent. While several physically disabled adult informants stressed that they would require specialized programs and services, they, nevertheless, felt these services should be provided within a mainstream institution. The remainder of the informants agreed with this approach. The informants recognized an inadequacy in the educational system relative to those severely disabled who cannot attend regular mainstream programs. Additionally, it was the opinion of all informants that programs and services for the homebound were lacking, but, nonetheless, urgently required.

As previously stated, the physically disabled adult informants preferred a mainstream learning experience for themselves whether it be a regular or specialized program. The significant other informants generally felt mobility, severity of disability, and abilities would determine the most appropriate type of program for an individual while the expert informants felt ability, motivation, attitude, availability of support services, and career planning would be the criteria to determine if an individual could attend a regular or a specialized program on a mainstream campus.

The foregoing data are conceptualized as Propositions 1, 2, and 3. (Ch. II, Prop. 10; Ch. VI, Props. 1, 2, 3; Ch. VII, Props. 1, 2, 3; Ch. VIII, Props 1, 2, 3.)

Category 2. The Nature Of Special Requirements For Physically Disabled Adults In A High Technology Learning Experience.

In comparing a high technology learning experience to a traditional learning experience, the physically disabled adult informants emphasized the benefit of high technology to themselves, having particular regard to their physical limitations. The literature review supported the position that a high technology learning experience can assist physically disabled adults to derive special benefits from such an experience and become more productive. While recognizing the foregoing, the significant other and expert informants perceived a need for technical aids. As well, such requirements as more emotional support and flexibility in time allotments and instructional techniques were also considered by these informants to be a vital part of a high technology learning experience.

According to the physically disabled adult informants, the unique feature of a high technology learning experience for physically disabled adults should be flexibility relative to time requirements and instructional methodology. The significant other informants rated flexibility or tailoring to the requirements of the physically disabled adult, as well as the availability of technical aids and attendants as required, as the desired unique feature of such an experience. The expert informants also rated flexibility in time and instructional methodology highly and, in addition, suggested accessibility, understanding, and the purchase and upkeep of current high-technology equipment as desirable unique features.

It was the belief of all informants that a high technology learning experience for physically disabled adults should be an accredited or well-recognized one. This is essential if an individual is to be competitive in the labor market. As noted, if such an experience were a part of a postsecondary mainstream institution, then, appropriate credentialing would follow. Such meaningful, portable credentials were considered to be desirable, if not essential, by the informants. Society demands such credentials as a yardstick of success. Since physically disabled adults already have one strike against them, they do not need another by receiving credentials of questionable value.

All informants concurred that participation and success in a high technology learning experience would be a positive experience for physically disabled adults. Some of the expert informants felt such an experience would possibly be even more rewarding for disabled persons than able-bodied persons since their lives have often caused them to focus on their shortcomings rather than their potential.

While the physically disabled adult informants felt success was important to everyone, some of them felt it may be even more important to the physically disabled than the able-bodied. They suggested that while the successes may be small, a great deal of effort may have been expended on them by the physically disabled thus rendering them of utmost importance. The significant other informants did not reach consensus on this issue, with some perceiving success may be more important to physically disabled people than able-bodied people while others felt they may be more accepting of failure. The expert informants deemed it difficult to generalize on this issue. This may be because of the nature of the disability, particularly whether it was congenital or not, as well as the environment of the individual.

The physically disabled adult informants viewed the objective of a high technology learning experience, or the way it could best prepare an individual for life, to be employment. The expert informants concurred with this by recognizing independence, which often stems from employment, to be the goal of such a learning experience. The significant other informants recognized the goal of independence to be foremost as well, but also perceived an improved assessment of disabilities in the formation of realistic attitudes and assistance in performing physical tasks to be additional goals or objectives of a high technology learning experience. The literature supports the view that the physically disabled who have attended a high technology learning experience can become more productive members of society.

The data in this category are conceptualized as Propositions 4, 5, 6, 7, and 8. (Ch. II Props. 1, 9; Ch. VI, Props. 4, 5, 6, 7, 8; Ch. VII, Props. 4, 5, 6, 7, 8; Ch. VII, Props. 4, 5, 6, 7, 8.)

Category 3. The Rationale That Would Prompt A Physically Disabled Adult To Undertake A High Technology Learning Experience.

Generally, all informants agreed that a worsening or deteriorating physical disability would be a factor which would prompt a physically disabled adult to undertake a high technology learning experience. A minority of significant other and expert informants suggested that such a deterioration might be a deterrent for some individuals since they might become discouraged. Other individuals may not face the fact that their condition is deteriorating and procrastinate. Nonetheless, the majority stated they were aware of many individuals who had attended a high technology learning experience because their condition was progressive or degenerative, and in fact, this had been the case for some of the physically disabled adult informants.

The physically disabled adult informants and the expert informants perceived a worsening economic climate, such as now being experienced in Alberta, to be an incentive to attend a high technology learning experience. However, the majority of significant other informants did not perceive a deteriorating economic climate to be a significant factor and considered that such a deterioration might tend to discourage such individuals from pursuing further learning experiences. On balance, it appears that a worsening economic climate would be an incentive for physically disabled adults to attend a high technology learning experience.

All informants were adamant in claiming that the availability of job opportunities and the ability to perform functions or engage in activities previously not possible prior to the availability of high-technology equipment to be an incentive for physically disabled adults to attend a high technology learning experience. Such equipment now makes many previously impossible tasks possible for the physically disabled.

The data in this category are conceptualized as Proposition 9. (Ch. II, Prop. 8; Ch. VI, Prop. 9; Ch. VII, Prop. 9; Ch. VIII, Prop. 9.)

Category 4. Obstacles To The Availability Of High Technology Learning Experiences For Physically Disabled Adults.

Consensus was reached by all informants in this study that physical, psychological, and social barriers still exist for physically disabled adults wishing to attend a high technology learning experience. However, it was also recognized that many of these barriers have been reduced, particularly in the last decade. This is particularly so relative to architectural barriers. The literature supports the view that physically disabled adults are no longer as disadvantaged in comparison to able-bodied people by architectural barriers. A similar condition prevails with respect to financial aid although some concern was expressed that government cutbacks could affect such assistance. It was generally the opinion that with effort physically disabled adults could overcome psychological barriers. Fear of failure was felt to be the most serious problem to overcome. Social obstacles, though lessening, still remain and can be frustrating to both the physically disabled and those around them. These obstacles are often subliminal and subtle but, nevertheless, hurtful and can be in the form of different or lowered expectations.

The previous data are conceptualized as Proposition 10. (Ch. II, Prop. 6; Ch. VI, Prop. 10; Ch. VII, Prop. 10; Ch. VIII, Prop. 10.)

Category 5. Efforts Physically Disabled Adults Would Be Prepared To Undertake In Order To Engage In A High Technology Learning Experience.

It was unanimously agreed by the informants in this study that physically disabled adults, for the most part, are prepared to try to do what is necessary to attend a high technology learning experience. If the necessary support services were available, they would be willing to acquire any prerequisites. They would also be prepared to relocate under similar conditions which would ensure the availability of support services. Companionship would also have to be considered before making such a move, and accommodation such as a group home might be desirable, particularly for those who need support and are accustomed to a family atmosphere. Since the majority of physically disabled adults have become accustomed to acquiring necessary equipment, this would not pose a problem for them. As many physically disabled adults wish to be treated equally, they would generally not hesitate to take out a student loan through the Students Finance Board. Some of the expert informants were aware of this being the case in ever increasing numbers in the recent past.

The physically disabled adult informants perceived that their high technology learning experience at P.H.O.E.N.I.X., coupled, in the majority of cases with success at work, would make them successful in another high technology learning experience and acceptable to employers. The significant other informants recognized such attributes as determination, motivation, and positive self-feelings to be the criteria that would spell success for an individual embarking on a high technology learning experience. The expert informants also attributed success in such an experience to motivation but also considered attitude, competence, and ability to be important.

The foregoing data are conceptualized as Propositions 11 and 12. (Ch. VI, Props. 11, 12; Ch. VII, Props. 11, 12; Ch. VIII, Props. 11, 12.)

Category 6. The Relationship Between The Degree Of Physical Disability And The Appropriateness Of A High Technology Learning Experience.

The informants concurred, that in general, the more severe the disability, the greater are the physical changes and instructional flexibility required. Those persons who are severely disabled will require more adaptations in physical facilities, particularly with regard to transport and access. The need for individualized adaptations was mentioned by the significant other and expert informants. It was also agreed that it may be more difficult to obtain prerequisites if an individual was more severely disabled than another but that the availability of high technology could go a long way to alleviate additional difficulties. While it was conceded that it may be more difficult to meet curriculum standards if one is severely disabled, curriculum should not be altered to any measurable degree. However, methods of instruction and time requirements should be flexible and geared to individual capacities to facilitate achievement.

The data in this category are conceptualized as Proposition 13. (Ch. VI, Prop. 13; Ch. VII, Prop. 13; Ch. VIII, Prop. 13.)

Category 7. Criteria Perceived To Be Relevant In Determining The Best Type Of High Technology Learning Experience.

It was agreed by the informants in this study that a high technology learning experience for physically disabled adults should include career planning, academic prerequisites or some type of screening device, a broad and varied curriculum such as able-bodied persons receive, and flexible and self-paced instruction with normal achievement standards. The literature supports the view that physically disabled adults do not require a different curriculum design from that provided for able-bodied persons but that they do require adaptive and flexible methods of instruction. They also have more unique learning requirements.

Furthermore, it was concurred by all informants that regular mainstream programs should be the first choice for physically disabled adults attending a high technology learning experience. It was felt that sometimes this does not happen, and mainstream programs are relegated to second or third choice when they should be given first consideration before other alternatives are sought. However, physically disabled adults are utilizing mainstream programs more so in the recent past, and this view is supported by the literature.

In order to accommodate the physically disabled adult more effectively, the physically disabled adult informants felt that mainstream programs must be more accessible in a physical sense and less rigid in their organization. Flexibility in terms of time frames and methods of instruction was also emphasized. The significant other informants stressed accessibility and flexibility as well but also added adaptability and the ability to be more accepting and understanding of the position of the physically disabled. The expert informants agreed with the foregoing requirements of flexibility and accessibility and the necessity of positive attitudes toward the disabled.

It was recognized by the informants in this study, and supported by the literature review, that not all physically disabled adults are able to attend mainstream postsecondary programs. Their physical or emotional state is such that they simply could not cope.

Accordingly, the informants suggested that specialized programs and services be provided for those who are severely disabled. While the more detailed options available in developing such programs and services were not purposefully investigated, all informants felt that such specialized programs and services should be made available on mainstream campuses. It was agreed that while segregation does occur, as indicated by the literature review, it should not generally occur.

It was perceived by the informants in this study that sheltered workshops were necessary for some physically disabled adults. While the concept of sheltered workshops aroused negative feelings among many of the informants, it was acknowledged that they did fulfill a useful function for individuals unable to cope in other work environments. The informants cautioned that workshops should be carefully supervised so as not to take advantage of anyone. The informants generally believed that this supervision could best be provided by a special unit or division of a mainstream institution.

In order to accommodate all levels of disability, the requirements of those physically disabled adults who are homebound were addressed. The informants were emphatic in their belief that the unique learning requirements of such individuals should be met. They suggested that with the availability of more and more high-technology equipment, the possibility of meeting these requirements of the homebound is increasing. The informants also agreed that programs and services for the homebound should be affiliated with and supervised by the aforementioned special unit or division of a mainstream campus.

It was agreed by all informants in the study that support services are essential for the more severely disabled. This view is also supported in the related literature. Consensus was that support services should be provided but only where necessary.

It was also agreed by all informants that funding should be provided for the special unit or division they recommended to serve the gamut of requirements for all levels of physical disability. Additionally, they concurred that financial assistance, where necessary, should be made available to individual physically disabled adults to enable them to attend a high technology learning experience.

The foregoing data are conceptualized in Propositions 14, 15, 16, 17, 18, 19, 20, 21, and 22. (Ch. II, Props. 3, 4, 5, 11; Ch. VI, Props. 14, 15, 16, 17, 18, 19, 20, 21, 22; Ch. VII, Props. 14, 15, 16, 17, 18, 19, 20, 21, 22; Ch. VIII, Props. 14, 15, 16, 17, 18, 19, 20, 21, 22.)

Category 8. The Possible Benefits That Physically Disabled Adults Could Derive From A High Technology Learning Experience.

It was concluded by the informants in the study that their could be significant benefits to a physically disabled adult attending a high technology learning experience. All felt that if physically disabled adults were successful in a high technology learning experience, it would improve their self-concept or image of themselves. Such a successful experience would tend to raise an individual's self-esteem. As well, such an experience could provide an individual with economic independence or, at the very least, a degree of it through employment. Several expert informants asserted that this would be particularly positive for physically disabled adults who are often on government assistance which tends to often erode independence. Additionally, attendance at a high technology learning experience could enhance an individual's social life as well as provide the individual with a greater degree of acceptance within the community. As proposed by several significant other informants, just getting out and attending such a program affords the individual greater opportunities for social interaction. The expert informants, in particular, noted that society tends to be more accepting of those who are working toward independence.

The data in this category are conceptualized in Proposition 23. (Ch. VI, Prop. 23; Ch. VII, Prop. 23; Ch. VIII, Prop. 23.)

Category 9. Attitudes And The Physically Disabled Adult.

It was the opinion of the informants in this study that the attitudes of physically disabled adults and those around them are significant in developing their self-concept. The literature review supported this position. Several physically disabled adult informants perceived that negative attitudes toward the physically disabled still exist but conceded these are beginning to disappear. The other informant cohorts agreed with this perception. Several informants in the significant other and expert cohorts concluded that such attitudes are often the result of the fact that individuals interacting with the physically disabled simply do not know what to do or say or what is expected of them. Informants in all cohorts agreed that it is also the responsibility of the physically disabled to make others at ease and comfortable with them. The significant other and expert informants contended that if physically disabled individuals are not comfortable with their position, then they cannot expect others to be. Several expert informants, particularly those who are physically disabled, felt that physically disabled individuals should take the time to make people comfortable with them. They particularly referred to children since it is our children who will change attitudes in society in the future. Informants noted that children in schools are being exposed to more physically disabled children as mainstreaming becomes more prevalent. A significant other informant noted that over protection can also be very dangerous and destructive for physically disabled individuals.

The foregoing data are conceptualized as Proposition 24. (Ch. II, Prop. 2; Ch. VI, Prop. 24; Ch. VII, Prop. 24; Ch. VIII, Prop. 24.)

Category 10. The Role Of Sports And Recreational Activities In A High Technology Learning Experience For Physically Disabled Adults.

Several of the physically disabled adult informants expressed the opinion that sports and recreational activities should be an integral part of a high technology learning experience for physical disabled adults. For one of these informants, sports activities played a significant role in his life. Another severely disabled individual was involved in a number of recreational sports activities. Additionally, the literature supports the contention that the availability and use of recreational activities enhances the learning environment of those physically disabled. Indeed, they may even be more significant for physically disabled persons than for able-bodied persons as one physically disabled adult informant stressed the improvement he experienced in his physical ability through very limited recreational activity.

These data are conceptualized as Proposition 25. (Ch. II, Prop. 7; Ch. VI, Prop. 25.)

Category 11. Equipment Resource Center.

The concept of an equipment resource center was proposed by several expert informants. The cost of remaining current relative to high-technology equipment is enormous. If each learning institution endeavours to keep up to date with the latest developments in technology, the cost is duplicated many times over. Therefore, if a resource center which acquired and maintained equipment were to be developed, the duplication of expenditures might be avoided. Expensive equipment would be less likely to remain idle and less of it could serve more persons and programs. The informants felt such a center might best be developed and administered by a private association or volunteer organization.

The foregoing data are conceptualized as Proposition 26. (Ch. VIII, Prop. 25.)

Summary

The following propositions synthesize or link the perceptions of the three groups of informants in this study, as well as those derived from the review of the limited related literature:

> Proposition 1: Mainstream educational programs for the physically disabled, while improving, are generally functionally and attitudinally inadequate.
>
> Proposition 2: Specialized programs and services for the severely disabled and homebound are inadequate.
>
> Proposition 3: While physically disabled adults prefer regular mainstream programs--motivation, attitude, mobility, ability, career planning, and availability of support services should determine whether a high technology learning experience for physically disabled adults is a regular mainstream or specialized program.
>
> Proposition 4: A high technology learning experience for physically disabled adults should be flexible relative to time and instructional methodology; accessible; supportive; and should be able to provide current high-technology equipment and attendants as required.
>
> Proposition 5: Learning experiences for physically disabled adults should be accredited and recognized as equivalent to regular mainstream programs.
>
> Proposition 6: A high technology learning experience should be designed to create positive feelings in physically disabled adults.
>
> Proposition 7: Success in learning is perceived to be more important for physically disabled adults than for the able-bodied.

Proposition 8: An improved assessment of abilities--enabling the formation of realistic goals, as well as assistance in the performance of physical tasks resulting from a high technology learning experience--may be of particular value to physically disabled adults relative to employment and independence.

Proposition 9: A worsening disability, a deteriorating economic climate, and the ability to perform functions previously not possible may prompt a physically disabled adult to attend a high technology learning experience.

Proposition 10: While physical, psychological, and social barriers to attending a high technology learning experience have declined for physically disabled adults, they still exist.

Proposition 11: Physically disabled adults are prepared to do what is necessary for attendance at a high technology learning experience, i.e. attain prerequisites, relocate, acquire equipment, and take out a student loan.

Proposition 12: Success for physically disabled adults in a high technology learning experience is affected by previous experience, motivation, determination, positive self-feelings or attitude, and competence or ability.

Proposition 13: The more severe the disability, the greater are the physical changes required in the learning and instructional environment.

Proposition 14: High technology learning experiences for physically disabled adults should include career planning, academic prerequisites, a broad and varied curriculum, flexible and self-paced instruction with prescribed guidelines, and should be an integral part of a mainstream campus.

Proposition 15: Regular mainstream programs are the first choice for physically disabled adults attending a high technology learning experience.

Proposition 16: In order to accommodate the physically disabled, mainstream programs must be flexible in terms of time frames and instructional methodology, adaptable, accessible, supportive, and the staff should exhibit positive attitudes toward physically disabled adults.

Proposition 17: The requirements of physically disabled adults are varied because of the diversity in the nature and severity of their disabilities.

Proposition 18: Specialized programs and services for physically disabled adults should be integrated under a special-purpose administrative unit of a mainstream campus.

Proposition 19: Sheltered workshops are required for some physically disabled adults and should be affiliated with a special-purpose administrative unit of a mainstream campus.

Proposition 20: The homebound urgently require programs and services which should be affiliated with a special-purpose administrative unit of a mainstream campus.

Proposition 21: Support services for the more severely disabled should be coordinated and provided by government as required.

Proposition 22: Funding should be provided to physically disabled adults and to a special-purpose administrative unit of a mainstream campus to remove barriers to learning.

Proposition 23: Attendance at a high technology learning experience could give physically disabled adults an improved self-concept, economic independence through employment, a more rewarding social life, and greater acceptance within the community.

Proposition 24: The attitudes of physically disabled adults and of those around them are significant in developing their self-concept.

Proposition 25: Sports and recreational activities should be an integral part of a high technology learning experience.

Proposition 26: The development of an equipment resource coordinating center is needed.

The foregoing consolidated propositions will be used to develop the conclusions of this study. Chapter X will provide a summary of the study, as well as the conclusions and recommendations derived from this conceptualization of the problem. The conclusions will specify the problem as outlined in Figure 4.3.

CHAPTER X

Summary, Conclusions, and Recommendations

This chapter contains an overview of the study. It begins with a summary of how the study was conceived and how the problem was structured for investigation. The findings are presented as propositions. Conclusions are then formulated on the basis of these propositions. The chapter concludes with recommendations for policy and practice, as well as for further research.

Summary

The study is described in terms of its rationale, purpose, research design, interpretive framework, data collection, and data analysis. The major findings are then conceptualized in the form of propositions.

Rationale for the Study

A greater awareness of the special education requirements of physically disabled adults has surfaced in the past decade. The findings of the Special Parliamentary Committee on the Disabled and the Handicapped (Canadian Rehabilitation Council for the Disabled, 1982:2) revealed that extraordinarily and unacceptably high rates of unemployment are found amongst employable, disabled Canadians. Statistics Canada Health Division (1986:13) expanded on the position of disabled Canadians by disclosing that disabled persons are in a much lower income level than non-disabled persons. Additionally, disabled persons are often disadvantaged in a twofold way because they have functional limitations that restrict the type of work they can do and because they have less education, which limits their access to work.

Some attempts are being made to meet the requirements of the physically disabled in Alberta. The Council of Ministers of Education, Canada (1987:16 and 17) noted that a number of postsecondary institutions in the province are being designated to provide special support services to those students requiring them. In 1981 the P.H.O.E.N.I.X. Training and Development Foundation was established to provide high-technology training to physically disabled adults but was subsequently closed because of financial and administrative difficulties. No similar program exists in the Edmonton area or elsewhere in Alberta.

The professional literature supports the position that high- technology training, or the use of high technology as a facilitator for the physically disabled, is an appropriate means of meeting the learning requirements of the physically disabled. Yet, very little in the way of guidance for the development of province-wide policies and programs is available. Consequently, programs and services have often been initiated in an exploratory and sporadic manner.

The study is justified on both practical and theoretical grounds. Practically, it should provide educators and decision makers with a perspective for policy and should yield information beneficial to those responsible for planning and conducting high technology learning experiences for the physically disabled adults. It should also offer insights to elected and appointed officials about the interest articulation and aggregation processes in policy development. Theoretically, it should add to knowledge about the use of problem structuring approaches relative to developing recommendations for policy decisions and should provide a test of the interpretive framework outlined by Dunn (1981). The propositions developed about the requirements of physically disabled adults and ways of meeting them could also be tested empirically, thereby leading to the development of theory.

Purpose of the Study

This study sought to examine the appropriateness of a high technology approach in meeting the learning requirements of physically disabled adults and to offer some guidance as to how this could best be done. Its specific purpose was to ascertain what information should be considered for problem structuring and policy development in the area of high technology learning experiences and physically disabled adults. In researching this problem, perceptions relative to the following questions were sought:

1. What are the present high technology learning experiences available for physically disabled adults, and are they perceived to be adequate for their requirements?
2. What is perceived to be the nature of special requirements for physically disabled adults in a high technology learning experience if they could ideally be met?
3. What rationale do physically disabled adults have for undertaking a high technology learning experience?
4. What are the obstacles (physical/psychological/social) to the availability of high technology learning experiences for physically disabled adults?
5. What efforts are physically disabled adults prepared to undertake in order to overcome obstacles they perceive standing in the way of achieving high technology learning experiences?
6. What is perceived to be the relationship between the degree of physical disability and the appropriateness of a high technology learning experience?
7. What are perceived to be the major criteria for determining the type of high technology learning experience to best meet the requirements of physically disabled adults?
8. What possible benefits are perceived to be derived by physically disabled adults from a high technology learning experience?

Reflective Question.

9. Will the perceptions of the informants, involved in this research, aid in the problem structuring and decision making process relative to policies on the high technology learning experiences of physically disabled adults?

Research Design

A qualitative approach was utilized in this investigation. Such an approach allowed for a broad exploration of the perceptions of the informants in this study relative to physically disabled adults and high technology learning experiences. This exploration was undertaken within an interpretive paradigm. The interpretive paradigm focuses on the scenarios people develop and reflects the belief that the world is not independent of their perceptions. Reality is socially constructed and not "out there" waiting to be discovered. It is dependent on the biographical features of individuals and their interpretation of events. A multi-case study research scheme, which is essentially an aggregation of case studies, was employed.

The linking or tying together of the foregoing three aspects of the research design proved beneficial. The qualitative approach provided for a comprehensive exploration into the perceptions of the informants relative to high technology learning experiences for physically disabled adults. In turn, the interpretive paradigm allowed for the derived perceptions of the informants to become the pivotal point of the investigation, while the multi-case study scheme permitted the inclusion of the perceptions of a number of informants. These informants made up three distinct cohorts so that the perceptions which evolved were drawn from a relatively broad perspective.

Interpretive Framework

The interpretive framework chosen for this study was the process of problem-structuring developed by Dunn (1981). The central focus of problem structuring is to ensure that the "right" problem is identified for solution. Three processes are involved in problem structuring: problem sensing, problem conceptualization, and problem specification. Problem sensing has to do with the "felt existence" of a problem. Problem conceptualization defines the problem in general terms relative to its basic source. Problem specification identifies the problem in a formal sense.

A more specific twofold framework was developed for this study from Dunn's model (Figure 4.1). One framework relates to the data collection phase of problem structuring (Figure 4.2), and the other relates to the data analysis phase of problem structuring (Figure 4.3). While these frameworks are separated for the purpose of conceptualizing the processes of collection and analysis, they do in fact overlap.

In the data collection phase, the "felt existence" of a problem or the lack of policy direction was discerned and served to clarify the rationale for the study. Conceptualization of the problem was aided by the use of the research design which entailed a qualitative approach, an interpretive paradigm, and a multi-case study scheme. The perceptions of the three informant cohorts generated alternatives thereby helping to specify the problem.

The data analysis phase of the study revealed unfulfilled expectations and unmet learning requirements or, once again, the "felt existence" of a problem. A synthesis of alternatives, derived from the personal conditions and experiences or biographical features of the informants, provided a clearer definition of the problem. The findings of the study in the form of propositions were thereby conceptualized. The conclusions of the study were conceived through the problem specification process which identified the problem.

Following the twofold processes developed from Dunn's (1981:107) problem-structuring model proved to be useful to this study. They served as guidelines or a course of action to follow during the investigation. They also served to provide boundaries for the inquiry.

Data Collection

Interviews were conducted with the informants during the fall term of 1986-87 academic year. Three cohorts of informants were interviewed: six were physically disabled adults, seven were significant others in the lives of the physically disabled adults, and twelve were experts in the field of physical disability. Two informants in the significant other cohort were also physically disabled while five informants in the expert cohort were physically disabled. The physically disabled adult informants were interviewed on three occasions. The first series of interviews ranged in length from 30 to 45 minutes while the second series ranged in length from one hour to two and a half hours. The final series varied from 10 minutes to just over one hour. The remainder of the informants were interviewed only once and these interviews varied from one hour to two and a half hours.

Purposeful sampling was used to select the physically disabled adult informants who participated in the study. Initially, the document sources were used in this process. The snowball technique was used to select the significant other informants. Both the snowball and purposeful sampling approaches were chosen to select the expert informant sample.

All interviews were recorded by a tape recorder. Subsequently, the interview tapes were transcribed verbatim by the researcher.

Data Analysis

Initial data analysis followed, in a very broad sense, the grounded theory approach as identified by Glaser and Strauss (1967) and as adapted by Turner (1981).

Data were grouped and regrouped dependent upon their relevance to the eight major categories developed to support the purpose of the study. This process was repeated for emerging categories and was continued until the categories were saturated.

Document sources were used in a very limited manner in this analysis. They were examined to verify and expand on the biographical data received during the interview process. The dependability of the data was reinforced by this juxtaposition.

Findings

The findings of this study were linked and consolidated in the form of 26 propositions:

> Proposition 1: Mainstream educational programs for the physically disabled, while improving, are generally functionally and attitudinally inadequate.
>
> Proposition 2: Specialized programs and services for the severely disabled and homebound are inadequate.
>
> Proposition 3: While physically disabled adults prefer regular mainstream programs--motivation, attitude, mobility, ability, career planning, and availability of support services should determine whether a high technology learning experience for physically disabled adults is a regular mainstream or specialized program.
>
> Proposition 4: A high technology learning experience for physically disabled adults should be flexible relative to time and instructional methodology; accessible; supportive; and should be able to provide current high-technology equipment and attendants as required.
>
> Proposition 5: Learning experiences for physically disabled adults should be accredited and recognized as equivalent to regular mainstream programs.
>
> Proposition 6: A high technology learning experience should be designed to create positive feelings in physically disabled adults.
>
> Proposition 7: Success in learning is perceived to be more important for physically disabled adults than for the able-bodied.
>
> Proposition 8: An improved assessment of abilities--enabling the formation of realistic goals, as well as assistance in the performance of physical tasks resulting from a high technology learning experience--may be

of particular value to physically disabled adults relative to employment and independence.

Proposition 9: A worsening disability, a deteriorating economic climate, and the ability to perform functions previously not possible may prompt a physically disabled adult to attend a high technology learning experience.

Proposition 10: While physical, psychological, and social barriers to attending a high technology learning experience have declined for physically disabled adults, they still exist.

Proposition 11: Physically disabled adults are prepared to do what is necessary for attendance at a high technology learning experience, i.e. attain prerequisites, relocate, acquire equipment, and take out a student loan.

Proposition 12: Success for physically disabled adults in a high technology learning experience is affected by previous experience, motivation, determination, positive self-feelings or attitude, and competence or ability.

Proposition 13: The more severe the disability, the greater are the physical changes required in the learning and instructional environment.

Proposition 14: High technology learning experiences for physically disabled adults should include career planning, academic prerequisites, a broad and varied curriculum, flexible and self-paced instruction with prescribed guidelines, and should be an integral part of a mainstream campus.

Proposition 15: Regular mainstream programs are the first choice for physically disabled adults attending a high technology learning experience.

Proposition 16: In order to accommodate the physically disabled, mainstream programs must be flexible in terms of time frames and instructional methodology, adaptable, accessible, supportive, and the staff should exhibit positive attitudes toward physically disabled adults.

Proposition 17: The requirements of physically disabled adults are varied because of the diversity in the nature and severity of their disabilities.

Proposition 18: Specialized programs and services for physically disabled adults should be integrated under a special-purpose administrative unit of a mainstream campus.

Proposition 19: Sheltered workshops are required for some physically disabled adults and should be affiliated with a special-purpose administrative unit of a mainstream campus.

Proposition 20: The homebound urgently require programs and services which should be affiliated with a special-purpose administrative unit of a mainstream campus.

Proposition 21: Support services for the more severely disabled should be coordinated and provided by government as required.

Proposition 22: Funding should be provided to physically disabled adults and to a special-purpose administrative unit of a mainstream campus to remove barriers to learning.

Proposition 23: Attendance at a high technology learning experience could give physically disabled adults an improved self-concept, economic independence through employment, a more rewarding social life, and greater acceptance within the community.

Proposition 24: The attitudes of physically disabled adults and of those around them are significant in developing their self-concept.

Proposition 25: Sports and recreational activities should be an integral part of a high technology learning experience.

Proposition 26: The development of an equipment resource coordinating center is needed.

The conclusions in this study are developed from the foregoing propositions and are presented in the next section.

Conclusions

The study findings served as the basis for developing conclusions relative to high technology learning experiences and physically disabled adults. They are supported by the perceptions derived from interviews with physically disabled adults, significant others in their lives, and experts in the field of physical disability, and by the review of related literature. The conclusions are related to the research questions and emerging themes and are presented in two categories. These are (1) existing conditions and resources and (2) future requirements. The conclusions serve to specify some dimensions of the problem and thereby offer a perspective for policy.

Existing Conditions and Resources

Programs and services for physically disabled adults in Alberta, while improving, are nevertheless unable to serve those at all levels or degrees of physical disability. The greatest amount of improvement is apparent in physical facilities such as accommodating doors, ramps, and bathrooms. The lack of positive attitudes toward the physically disabled and an unwillingness to be accommodating and flexible in instructional methodology are often evident. These findings constitute the basis for the first conclusion of this study:

1. *Mainstream and specialized programs and services for physically disabled adults are inadequate.*

Many degrees of physical disability range from very minor incapacities to totally inhibiting conditions. The more severe the disability, the greater the physical changes and instructional flexibility that are required. The requirements of physically disabled adults are so varied because of the great diversity in both the nature and severity of their disabilities. For example, one individual with cerebral palsy, who walks with the aid of a cane, requires a thick carpet to walk on rather than a slippery linoleum surface. Conversely, a quadriplegic, confined to a wheelchair, has difficulty moving on a thick carpet but moves with less difficulty on a linoleum surface. With respect to learning requirements, one physically disabled adult may require only very minor adjustments, for example, to a computer to take notes whereas another may require an attendant to take notes and carry them. These findings lead to the second conclusion:

2. *A range of requirements exist for physically disabled adults in high technology learning experiences.*

Physically disabled adults are still faced with a number of obstacles when they embark on high-technology training. Psychological and social barriers, while diminishing, still exist and are often more difficult to overcome than physical ones. While these barriers are often covert, they, nevertheless, cause physically disabled adults difficulties. Often these barriers are not intentional but, nonetheless, are damaging. Attitudes held by both physically disabled adults and those around them are influential in enhancing self-esteem and motivation.

In spite of barriers, physically disabled adults are prepared to attend high technology learning experiences and are often prompted to do so because of a worsening disability. They appreciate that as they age, their ability to perform physical functions is going to become more limited, and high technology can assist them to maintain their self-reliance. They also believe that high technology has the potential to assist with functions they have never previously been able to perform. The deteriorating economic climate is also a strong motivator. Physically disabled adults recognize they are currently disadvantaged in the work place, and a high general unemployment rate is only going to aggravate their already difficult position. Therefore, they recognize a necessity to prepare themselves to be more competitive in the job market.

Once physically disabled adults have made the decision to seek or attend a high technology learning experience, they are willing to meet all necessary and reasonable demands placed upon them. These demands may include attaining necessary prerequisites, relocating, acquiring equipment, and taking out a student loan. Some will require additional support services such as specialized transportation and adapted computers to fulfill their expectations. Accordingly, it is concluded that

3. *Physically disabled adults are strongly motivated to attend high technology learning experiences and are prepared to overcome obstacles and make sacrifices to do so.*

The results of a high technology learning experience for physically disabled adults are significant and beneficial in a number of ways. Successful completion of such an experience is probably more important to them than to most able-bodied persons. Their successes are few and relatively minor, yet a great deal of effort was required to accomplish them. This success is critical to feelings of self-worth. Successful involvement in an activity viewed by themselves and society as desirable enhances their social status and personal esteem. As a consequence, they tend to become more socially active. Physical activity may also be facilitated. Thus, in addition to the obvious benefit of possible economic independence through employment, other benefits such as a realistic assessment of abilities, improved self-concept, a more rewarding social life, and greater acceptance within the community can accrue to physically disabled adults from attending and completing a high technology learning experience. The conclusion which emerges is that

> 4. *Success in a high technology learning experience is highly valued by physically disabled adults and is very beneficial to them.*

Future Requirements

Regular mainstream programs are the first choice for physically disabled adults embarking on a high technology learning experience. Programs and services available at mainstream institutions should be examined to determine how the requirements of the individual can be met by them. Only when it can be demonstrated otherwise, should other alternatives be considered. Such factors as motivation, attitude, mobility, ability, provisions for career planning, and availability of support services will ultimately determine whether a high technology learning experience for a physically disabled adult is a regular mainstream program or a specialized one. In turn, success in such a program depends on many of these same factors including the learner's previous experience, motivation, determination, self-image, and competence or ability. As a result of these findings, the fifth conclusion is:

> 5. *Regular mainstream programs and services are preferred by physically disabled adults.*

If regular mainstream programs and services are not suitable for those who are more severely disabled, then specialized programs and services must be provided. Sheltered workshops may be the only feasible way that some individuals can function in the work place. Additionally, some persons are homebound and programs and services should be brought to their homes so that they can be helped to lead more stimulating lives. Moreover, physically disabled adults who may be able to attend a regular program the majority of the time sometimes find themselves homebound for a period of time and require activities and services which will allow them to continue their studies.

Specialized programs and services for physically disabled adults should be at least coordinated, if not integrated, by a special-purpose administrative unit of a mainstream campus. While the details of structure and operation of such a coordinating unit were not addressed by this study, it is clear that it should be a part of a mainstream institution and not a separate entity. The sheltered workshop and programs and services for the homebound should, in turn, be affiliated with the special-purpose administrative unit. These findings were used to formulate the sixth conclusion:

> 6. *A special-purpose administrative unit is envisioned as an integral part of a mainstream institution, with sheltered workshops and programs and services for the homebound affiliated with it.*

Whether a high technology learning experience for physically disabled adults is offered in a regular mainstream program or is a specialized one falling under the direction of the envisioned special-purpose administrative unit, a number of characteristics or criteria are considered to be essential. These include self-paced instruction within prescribed guidelines, a broad and varied curriculum, physical accessibility, instructors who exhibit positive attitudes toward physically disabled adults, and provision for sports and recreational activities. In addition, specialized programs would need to provide attendant care as required. Specialized programs must also be accredited and recognized as equivalent to regular mainstream programs. The foregoing findings give rise to the following conclusion:

> 7. *Physically disabled adults require innovative and adaptive high technology learning experiences.*

To adequately meet the requirements of physically disabled adults in a high technology learning experience, support services are often required to enable individuals to participate. This is particularly so in the case of those who are severely disabled. Support services may range from a very minor adaptation of a piece of equipment to the requirement of an attendant to care for daily living activities. Support services should be provided by the learning institution, as required, for physically disabled adults attending a high technology learning experience.

Additional funding is required from government for three purposes. These include those required for the foregoing discussed support services, for the maintenance requirements of physically disabled adults, and for the special-purpose administrative unit recommended. If money is a barrier to physically disabled adults wishing to attend a high technology learning experience, then it should be provided. As with support services, such financial support should only be provided as necessary and according to an individualized assessment of the financial position of each individual. However, the special-purpose administrative unit envisioned to care for the requirements of physically disabled adults in a high technology learning experience should be funded on the same basis as any other component of a mainstream postsecondary institution. These findings support the following conclusion that

8. *Additional and ear-marked funding from government is necessary to enable physically disabled adults to participate in high technology learning experiences.*

While the concept of an equipment resource coordinating center was advanced by only a few informants, it may offer a novel or unique solution to a difficult problem. The cost of remaining current with high-technology equipment is excessive. It is virtually impossible for each institution to finance the acquisition of the latest advancement in high-technology equipment. However, if a centralized equipment resource center was maintained to serve a group of institutions, duplication and high costs might be avoided or controlled. Additionally, expensive equipment would be less likely to sit idle, and less equipment might then serve more individuals. Such a center might be developed and administered by a private association or volunteer organization. These data led to the following conclusion:

> 9. *An equipment resource coordinating center is an alternative way of providing high technology equipment for mainstream institutions, specialized programs, and individuals.*

This section delineated the conclusions of this study which are intended to aid in problem structuring and the development of a perspective for policy. What follows are the recommendations for policy and practice as well as suggestions for further research derived from these conclusions.

Recommendations

The recommendations in this section are an attempt to move toward resolution of the problematic situation outlined in the study. They represent a logical extension of the two-phase interpretive framework developed for this study from Dunn's (1981) problem-structuring model. As Dunn (1981:220) noted, "the method of recommendation involves the transformation of information about policy alternatives into information about policy actions that will result in valued outcomes."

he recommendations in this study are discussed as they relate to policy and practice, and to further research. Those recommendations related to policy and practice involve taking cognizance of the conclusions and implementing them, while the latter illuminate further information requirements and identify ways and means of obtaining them. These recommendations for policy and practice will partially address the reflective question in this study which asked:

> 9. Will the perceptions of the informants, involved in this research, aid in the problem structuring and decision making process relative

> to policies on the high technology learning experiences of physically disabled adults?

As suggested by Hansen (1987:212), "a solution to a problem is a part of defining the problem." Therefore, the recommendations relative to high technology learning experiences for physically disabled adults have already been discussed to some degree as conclusions.

Recommendations for Policy and Practice

It is abundantly clear from the data examined in this study that programs and services for the physically disabled adult should not be segregated entities developed in isolation from mainstream postsecondary institutions. While this was a much-travelled route in the past, it is not the way to proceed in the future. Not only do experts in the field of disability agree that mainstream postsecondary high technology learning experiences are more beneficial and appropriate than segregated ones, but they are also preferred by physically disabled adults. In acceding to this preference, care must be taken to ensure that students who are not able to perform required activities do not impede the progress of others; nor pose hazards to themselves, other students, or staff, for which the institution might be held liable. Nonetheless, the first recommendation is that

1. *High technology learning experiences for physically disabled adults be provided, wherever possible, within mainstream postsecondary institutions.*

In order to provide for the often varied and unique requirements of physically disabled adults, it is desirable that a special-purpose administrative unit be developed to address these requirements. This unit would function as an advocate and coordinator for physically disabled adults. Such a unit should be an integral part of a mainstream postsecondary institution. Its chief executive officer would work in conjunction with other managers in the institution as an advocate for the physically disabled adult student. Operationally, it might function in a similar fashion to the continuing-education divisions found in many institutions. An important initial responsibility of such a unit would be to conduct a "needs survey" to determine what ought to be offered.

This study did not explore in detail the purposes and procedures of these special-purpose administrative units. It may be that some units would act only in the capacity of advocate and coordinator while others would actually provide specialized programs for the more severely disabled, or they may offer both services.

Nor did this study examine which institutions in the province should have a special-purpose administrative unit as an integral part of their operation. Probably this kind of facilitating special-purpose administrative unit should exist in each major postsecondary institution in the province. Additionally, the Department of Advanced Education might establish a similar unit at the provincial and/or regional level to coordinate activities of private vocational schools. Therefore, another recommendation that

> 2. *A special-purpose administrative unit responsible for coordinating and facilitating programs and services for physically disabled adults be established within mainstream postsecondary institutions and at the provincial or regional level.*

Since physical disabilities are diverse, the requirements of physically disabled adults are likewise diverse. They range from very minor disabilities which could be considered as little more than inconveniences to the complete inability of the individual to cope with daily life without a great deal of assistance and accommodation. Thus, while it is possible for the majority of physically disabled adults to function within regular mainstream programs and services, this is impossible for others. As a result, it is necessary to provide specialized high technology learning experiences for those who are severely disabled.

It is also necessary to consider the requirements of those who are unable to function within a normal work place environment. While the concept of sheltered workshops meets with some resistance, ambivalence is also expressed. In the past, sheltered workshops have not always been managed to the benefit of the physically disabled. The informants generally perceive that physically disabled adults have often been used or exploited since they often work for very low wages. Indeed, sheltered workshops are viewed by some as little more than babysitting services or basket-weaving enterprises. It is recognized, nonetheless, that sheltered workshops are required by some physically disabled adults. Consequently, sheltered workshops should be available for those requiring them and should be administered through the previously proposed units. Their careful supervision is mandatory to avoid the errors of the past.

Additionally, it is important to recognize and provide for those physically disabled adults who are homebound and immobilized. Some physically disabled adults are bedridden and unable to move from their homes. However, they have intelligent and active minds that could be productive if the opportunity were afforded them. High technology could be adapted to provide for the requirements of these individuals, whether they be in their own homes, group homes, or extended care hospitals.

Physically disabled adults, while generally mobile, are prone to infections and other medical problems that leave them homebound for extended periods of time. In our climate, the winter months often leave them more susceptible to health-related problems. The inclement weather, itself, is often a deterrent to travel for those who are more severely disabled. As a result, their learning activities are often impeded. Often these individuals find that they are unable to keep pace with prescribed time lines. High technology applications could help the physically disabled better cope with these kinds of problems. It is thus recommended:

> *3. Provisions for high technology learning and applications for severely disabled adults should be under the aegis of the special-purpose administrative unit of a post-secondary institution or the provincial government.*

Since the requirements of physically disabled adults are diverse, it is essential to consider a number of criteria in establishing high technology learning experiences for them. Architectural barriers must be removed and accessibility to the physically disabled adult ensured. While curriculum should remain as broad and varied as it would for anyone else, instructional methodology should be more flexible. A self-paced approach is desirable. However, guidelines or performance standards should, nevertheless, be prescribed and followed. Sports and recreational activities are beneficial to physically disabled adults and as such should be an integral part of a high technology learning experience for them. It is essential that any programs for physically disabled adults be accredited and that the credentials granted be meaningful and portable. This would be a foregone conclusion if the experience were part of a mainstream postsecondary institution. It is therefore recommended that

4. *High technology learning experiences for physically disabled adults should be physically accessible and accredited, offer a varied curriculum, exhibit flexible instructional methodology, and offer sports and recreational activities.*

A willingness to be flexible and innovative on the part of those persons offering high technology learning experiences is essential. Even more important, those involved in such a learning experience should be understanding toward physically disabled adults and their disability. Such an attitude is essential to encourage individuals to maximize their potentialities and thus enhance their self-concept. Since success is highly valued by physically disabled adults, those interacting with them should strive to acknowledge and reward satisfactory performance. The foregoing indicates that

5. *Persons responsible for high technology learning experiences for physically disabled adults should be flexible and innovative and positive in their relationships with them.*

Three classes of funding should be considered which provide coverage for support services and maintenance requirements for physically disabled adults, as required, and for the special-purpose administrative units envisioned.

Support services are critical to physically disabled adults and most particularly those who are severely disabled. Often only minor adaptations to equipment are necessary and can be provided by a willing and innovative staff. Conversely, some individuals require aids to daily living which could include costly attendant care. As previously discussed, support services to enable the homebound to access high technology learning experiences should also be provided. Support services, as required, should be an integral part of a high technology learning experience for the physically disabled adults.

It is recognized that, more often than not, physically disabled adults are often disadvantaged financially. While a deteriorating economic climate usually affects everyone, it often delivers a more severe blow to those who are disabled. They are, therefore, doubly disadvantaged. If physically disabled adults are to participate in a high technology learning experience, then most of them will require additional financial assistance. While physically disabled adults are prepared to seek loans from the Students Finance Board, some will also require grants-in-aid; otherwise, the debt load will be a deterrent to enrolment and the prospect of repayment slight. Additionally, funding should be provided to a special-purpose administrative unit as it would be to any other part of a mainstream postsecondary program. The recommendation which emerges is that

> *6. A financial plan should be devised and funded by government to provide for the maintenance of physically disabled adults and necessary support services, including special-purpose administrative units.*

The cost of providing high-technology support services places a heavy financial burden on learning institutions. Often what was the latest innovation six months ago is obsolete today. The costs of support services are often needlessly duplicated many times over when each mainstream postsecondary institution endeavours to remain current relative to this equipment. As well, this equipment may sometimes remain idle. This needless duplication of services could be overcome if an equipment resource center was developed. This center would keep current on the latest high-technology equipment for living and learning. It would also maintain such equipment. The equipment would be loaned out to the institutions as required. Therefore, it is proposed that

7. *An equipment resource center should be established to provide high-technology equipment to learning institutions.*

Recommendations for Further Research

The 26 propositions which constitute the findings of this study are deemed to be trustworthy in relation to its purposes and parameters. They are descriptive statements about conditions or phenomena offered for consideration and acceptance. To move these propositions to the level of generalizations that would systematically describe and explain these phenomena, thereby leading to the development of theory, requires that they be refined and empirically tested. Accordingly, it is recommended that

1. *The propositions derived from the data of this study be examined and refined through the collection of further empirical evidence.*

A Concluding Observation

The expectations for this investigation, which were identified in Chapter I, have, in large measure, been achieved. In a practical way, the conclusions and recommendations of the study have provided a sense of direction or perspective for policy to institutional and government personnel. The findings of the study have supplied information helpful to those planning and conducting high technology learning experiences for physically disabled adults. Some insights for policy makers about interest articulation and aggregation processes also emerged. In theoretical terms, this study provided an opportunity to test the problem-structuring interpretive framework outlined by Dunn (1981) and to demonstrate its utility in the formulation of policy recommendations. The adaptations of this framework (Figures 4.1 and 4.2) were of utility to the researcher as they helped to order an otherwise "messy" or unorderly policy problem. The three phases of problem structuring guided the researcher through the study in a step-by-step fashion and may be beneficial to other researchers in the future. Additionally, some propositions have been generated that may be examined and refined empirically.

In reflecting on the twofold interpretive framework used in this study (Figures 4.1 and 4.2), it is the researcher's opinion that the problem sensing phase, as it relates to data collection, served as a problem verification tool; that is, even before beginning the study the researcher "felt" the existence of a problem relative to physically disabled adults and high technology learning experiences. During data analysis, the problem was refined and became less nebulous as the perceptions of the informants in this study revealed unfulfilled expectations and unmet learning requirements.

In moving from a problematic situation to a substantive problem, the conceptualizations of the problem, which emerged from the perceptions of the three cohort groups, helped to "define the problem in its most basic and general terms" (Dunn, 1981:108). Overall, the research design allowed the researcher to take cognizance of the perceptions of the individuals in the three groups, arising from their personal condition, and to synthesize them into general propositions.

These propositions were the basis from which the conclusions of the study were derived. The conclusions served to specify the problem. This kind of formulation of the formal problem does not conform to the means of problem specification advocated by Dunn (1981:109). He suggested that problem specification entailed preparing a formal mathematical representation of a substantive problem. Although Dunn (1981:109) acknowledged some of the inadequacies of a mathematical formula when the problem is ill-structured, researchers contemplating using Dunn's problem-structuring framework should give careful advance consideration to the problem specification phase of the framework.

The researcher believes that the conclusions of the study may be interpreted as identifying at least some aspects of the "right" problem which Dunn (1981:98) considered to be critical in policy analysis. The stage has been set for problem solving and policy making to begin. It is recognized that this study does not focus on the cost of implementation of the recommendations, and such considerations may be problematic for policy makers. It is also recognized that the perspective offered has been derived from the perceptions of those directly affected and involved. The policy directions which the conclusions offer reinforce those of The Klufas Report on Services to Disabled Persons prepared by the Alberta Task Force on Services to Disabled Persons (1983:22):

> Over a century ago, Ralph Waldo Emerson wrote, "the secret of education lies in respecting the pupil." This is true for all but has particular relevance for disabled persons whose individual needs must be specifically accommodated if they are to enjoy the educational rights most citizens take for granted.

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APPENDIX A

Correspondence

FACULTY OF EDUCATION
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THE UNIVERSITY OF ALBERTA
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January 8, 1985

Mr. R. Jamha
President, Board of Directors
P.H.O.E.N.I.X. Training and
Development Foundation
Box 18000, EDMONTON, AB
T5J 2P4

Re:Research Proposal: B. Bottas

Dear Mr. Jamha:

I am requesting that your Board grant, to Bernice Bottas, access to information about a number of former students in your program. Mrs. Bottas, a Ph.D. student in this Department, would like to interview a number of former students and, as well, obtain access to their files. In each case she would first explain her project to the former student and then obtain from them, if they decide to participate, an informed consent form. She is able to assure them and the Board of complete confidentiality and anonymity. As volunteer particpants, the students would be able to withdraw from the study at any time. Mrs. Bottas' proposed project has been reviewed by four members of our Department staff and we agree that the design of the study is in harmony with the ethical standards for research used by our Department.

A copy of the most recent draft of her proposal and a copy of the informed consent form are included.

Yours sincerely,

D. A. MacKay
Professor

DM/bo
c.c.: B. Bottas
Encl.

P.H.O.E.N.I.X. Training & Development Foundation
12245 - 131 Street, Edmonton, Alberta — T5L 1M8
Phone (403) 455 - 1883

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January 21, 1985

Professor D. A. MacKay
Faculty of Education
Department of Educational Administration
University of Alberta
Edmonton, Alberta
T6G 2G5

Dear Professor MacKay:

Re: Research Proposal: B. Bottas

I am pleased to inform you, on behalf of the Board of Directors, that your request for Mrs. Bottas, a Ph.D. student, to access the files of a number of former students in the P.H.O.E.N.I.X. Training Program, has been granted.

It was requested at the Board meeting that signed copies of the Student Consent Forms be presented to Ms. M. Butler, Acting Executive Director, prior to Mrs. Bottas accessing the files. On behalf of the Board of Directors, I would like to wish Mrs. Bottas every success in her endeavours, and request that on completion of her disertation, a copy would be forwarded to the Board for information purposes.

Yours sincerely,

M R. Butler/p/p R. Jamha

R. H. Jamha
President
Board of Directors

MRB/hl

cc. B. Bottas

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL
ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA
T6G 2G5

May 9, 1985

I am a graduate student at the University of Alberta. My doctoral dissertation concerns P.H.O.E.N.I.X. and the directions it should take.

Your experience at P.H.O.E.N.I.X. and your resultant perceptions will be invaluable to my research and ultimately to P.H.O.E.N.I.X.

Next spring I would appreciate the opportunity to interview you in order to gather data. Such interviews will be treated as strictly confidential as will information obtained from your student files.

I would appreciate it if you would agree to participate in my research by signing the enclosed Consent to Participate form and returning it to me in the self-addressed, stamped envelope no later than May 22, 1985. If you should change addresses before I get in touch with you, would you please advise me.

Thank you for your cooperation. You may reach me at 471-7854 (business) or 456-7156 (residence) if you wish any further clarification with respect to this research.

Yours truly,

Bernice Bottas

Bernice Bottas
Graduate Student

BB:ma
Encl--2

FACULTY OF EDUCATION
DEPARTMENT OF EDUCATIONAL
ADMINISTRATION

THE UNIVERSITY OF ALBERTA
EDMONTON, CANADA
T6G 2G5

5 June, 1985

I am extremely pleased to have you as a participant in my research being conducted at the University of Alberta. I am pleased to say that I have had a higher than anticipated response which I feel certain reflects your concerns for the future of education designed for the physically disabled adult Albertan.

As you may or may not know P.H.O.E.N.I.X. may close at least in its present form. Therefore, while my research may need to take a slightly different direction, I believe it may be more relevant and timely than ever.

As I indicated to you in my first communique with you, I will not be conducting my interview with you prior to April of next year as I see my schedule at this time. Therefore, since I have already put a year's work into this research and will have by then put in another year's work, it is important to me that I not lose contact with you. If you should move prior to our interview, please call me at 456-7156 (home) or 471-7854 (business) or write me a note to 9831 - 169 Avenue, Edmonton, T5X 3A3. If you should be leaving town permanently prior to the interview I could make arrangements for same, at your convenience, prior to next spring.

Your input to my research is invaluable to me and I thank you for your participation.

Yours truly,

Bernice Bottas

Bernice Bottas
Graduate Student

APPENDIX B

Consent to Participate Forms

CONSENT TO PARTICIPATE

____________________________ voluntarily consents to participate in an interview with Bernice Bottas, a graduate student in the Department of Educational Administration at the University of Alberta, to be used in data gathering for a doctoral dissertation. I am fully aware of the purpose of this study and understand that what I am saying will be treated as strictly confidential.

I agree to permit the interview to be tape recorded with the understanding the tapes will be erased upon completion of this research.

I also agree to grant the researcher permission to access my student files at P.H.O.E.N.I.X. with the understanding that all information will be kept confidential through the use of a coding system.

Date ______________________ Signed ______________________

Witness ______________________

CONSENT TO PARTICIPATE

__________________________ voluntarily consents to participate in an interview with Bernice Bottas, a graduate student in the Department of Educational Administration at the University of Alberta, to be used in data gathering for a doctoral dissertation. I am fully aware of the purpose of this study and understand that what I am saying will be treated as strictly confidential.

I agree to permit the interview to be tape recorded with the understanding the tapes will be erased upon completion of this research.

Date ____________________

Signed _______________________

Witness _______________________

APPENDIX C

Interview Guides

INTERVIEW GUIDE

FIRST ROUND - PHYSICALLY DISABLED ADULTS

These procedures will be followed: Begin the interview with a review of the purpose of this research. Emphasize the confidentiality of information and review the Consent to Participate form previously signed. Outline that the participant is not obligated to discuss any question further if it (the question) disturbs the participant.

- - - - -

What can you tell me about your background that will help me get a better understanding of you? These are some of the things you might consider but you are not limited to these matters.

- what is your age? your marital status?
- are you presently employed and if so, what do you do?
- what work experience have you had?
- what can you tell me about your personal life (i.e. relationships, sexuality, faith)?
- what social or recreational activities are you engaged in?
- what schooling have you had aside from your P.H.O.E.N.I.X. experience?
- what can you tell me about life for you at present?
- how do you feel about yourself at the present time?
- has your disability affected your emotional well–being?

- have you been able to come to terms with or resolve any emotional outcomes due to your circumstances? how (i.e. counselling)?
- what can you tell me about your physical well–being. (i.e. mobility, pain)?
- what is your disability?
- how limiting is your disability?
- is your disability progressive or stable?
- is your disability congenital and if not at what age did you become disabled?

What does the term "high technology" mean to you?

INTERVIEW GUIDE

SECOND ROUND - PHYSICALLY DISABLED ADULTS

What are the present high technology learning experiences for physically disabled adults, and do you perceive them to be adequate for their requirements?

- in mainstream postsecondary school settings?
- in specialized postsecondary school settings?
- in other settings (i.e. homebound)?
- what setting would be most appropriate for you? why?

What is the nature of special requirements for physically disabled adults in a high technology learning experience?

- how would it particularly meet your learning needs as compared to other learning experiences you have had?
- what would be unique about it?
- how important is it that the learning experience be an accredited, recognized one?
- how desirable is it to receive credentials?
- how would it make you feel?
- how important is the likelihood of success?
- how might it prepare you for your future life (objectives)?

What rationale might physically disabled adults have for undertaking a high technology learning experience?

- worsening of your disability?
- the economic climate?

- the availability of job opportunities and the ability to perform functions or engage in activities previously not possible?

When you undertook a high technology learning experience, what obstacles to availability did you perceive to be standing in your way?

- physical (i.e. mobility, economics)?
- psychological?
- social?

If you were to consider taking up another high technology learning experience, what efforts would you consider engaging in to enable you to do so?

- attaining the necessary academic prerequisites?
- moving to an area where such facilities were available?
- attaining or arranging for the necessary equipment in order to attend regularly (i.e. transportation)?
- if tuition were not covered by AVT or VRDP, would you be prepared to use the Students Finance Board?
- what is it about you, or what you have done that would make you an acceptable and successful student in a high technology learning experience?

Is the severity of your physical disability a consideration in determining the appropriateness of high technology learning experience for you?

- physical facilities?
- accessibility (i.e. location, transportation)?
- prerequisites?

- curriculum?
- method of instruction?

Would you tell me what is the best type of high technology learning experience for you?

- career planning (matching skills, abilities, interests,
- temperaments to occupational requirements)?
- academic prerequisites?
- curriculum (content)?
- instruction or methodology (i.e. self–paced)?
- physical facilities and setting (i.e. mainstream or specialized)?
- facilities and administration (mainstreaming, specialized sheltered workshops, cottage industries)?
- support services--personnel trained to meet the specialized needs of physically disabled persons (i.e. health aide)?
- financial cost/availability of funding?

How would a high technology learning experience benefit you?

- a better self–concept (how you see self)? a greater feeling of self worth (your worthiness, dignity, emotional well–being)?
- a training opportunity leading to a greater degree of independence (employment)?
- a fulfilling employment opportunity?
- a more rewarding social life?
- a greater acceptance of yourself within the community?

INTERVIEW GUIDE

THIRD ROUND - PHYSICALLY DISABLED ADULTS

In our last discussion, we touched on (a number of) an interesting concept. This interview is designed to give us an opportunity to elaborate on this (these) concept(s) and to understand it (them) more fully.

INTERVIEW GUIDE

SIGNIFICANT OTHERS

These procedures will be followed: Begin the interview with a review of the purpose of this research. Emphasize the confidentiality of information and review the Consent to Participate form previously signed. Outline that the participant is not obligated to discuss any question further if it (the question) disturbs the participant.

- - - - -

What is your relationship to _______________, and how long have you known him/her?

- parent?
- spouse?
- child?
- close confidant and/or friend?
- employer?
- educator?

What does the term "high technology" mean to you?

What are the present high technology learning experiences for physically disabled adults, and do you perceive them to be adequate for their requirements?

- in mainstream postsecondary school settings?
- in specialized postsecondary school settings?
- in other settings (i.e. homebound)?

- what factors would determine the appropriateness of a particular setting for a particular physically disabled adult?

What is the nature of special requirements for physically disabled adults if they could ideally be met?

- how would it particularly meet the needs of physically disabled adults as compared to other learning experiences you are aware of?
- what would be unique about it?
- how important is it that the learning experience be ~~an~~ accredited, recognized one?
- how desirable is it to receive credentials?
- how do you think it would make a physically disabled adult feel?
- how important is the likelihood of success?
- how might it prepare a physically disabled adult for the future (objectives)?

What rationale might physically disabled adults have for undertaking a high technology learning experience?

- worsening of their disability?
- the economic climate?
- the availability of job opportunities and the ability to perform functions or engage in activities previously not possible?

What obstacles to availability do you perceive standing in the way of physically disabled adults embarking on a high technology learning experience?

- physical (i.e. mobility, economics)?

- psychological?
- social?

What efforts do you perceive a physically disabled adult engaging in in order to attend a high technology learning experience?

- attaining the necessary academic prerequisites?
- moving to an area where such facilities were available?
- attaining or arranging for the necessary equipment in order to attend regularly (i.e. transportation)?
- willingness to use the Student Finance Board if tuition was not covered by AVT or VRDP?
- what do you feel would make an individual acceptable and successful in a high technology learning experience?

Is the severity of a physical disability a consideration in determining the appropriateness of a high technology learning experience for a physically disabled adult?

- physical facilities?
- accessibility (i.e. location, transportation)?
- prerequisites?
- curriculum?
- method of instruction?

Would you tell me what is the best type of high technology learning experience for physically disabled adults?

- career planning (matching skills, abilities, interests, temperaments to occupational requirements)?

- academic prerequisites?
- curriculum (content)?
- instruction or methodology (i.e. self–paced)?
- physical facilities and setting (i.e. mainstream or specialized)?
- facilities and administration (mainstreaming, specialized, sheltered workshops, cottage industries)?
- support services--personnel trained to meet the specialized needs of physically disabled persons (i.e. health aide)?
- financial cost/availability of funding?

How would a high technology learning experience benefit a physically disabled adult?

- a better self–concept? a greater feeling of self–worth (your worthiness, dignity, emotional well–being)?
- a training opportunity leading to a greater degree of independence (employment)?
- a fulfilling employment opportunity?
- a more rewarding social life?
- a greater acceptance of physically disabled adults within the community?

INTERVIEW GUIDE

EXPERTS IN THE FIELD OF PHYSICAL DISABILITY

These procedures will be followed: Begin the interview with a review of the purpose of this research. Emphasize the confidentiality of information and review the Consent to Participate form previously signed. Outline that the participant is not obligated to discuss any question further if it (the question) disturbs the participant.

- - - - -

What is your expertise in the field of physical disability.

- specialization/capacity?
- length of involvement?

What does the term "high technology" mean to you?

What are the present high technology learning experiences for physically disabled adults, and do you perceive them to be adequate for their requirements?

- in mainstream postsecondary school settings?
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- in other settings (i.e. homebound)?
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- how desirable is it to receive credentials?
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- a fulfilling employment opportunity?
- a more rewarding social life?
- a greater acceptance of physically disabled adults within the community?

APPENDIX D

Other Related Correspondence

ADVANCED EDUCATION

Office of the Minister

127 Legislature Building, Edmonton, Alberta, Canada T5K 2B6 403/427-2291

April 10, 1986

Ms. Bernice Bottas
Instructor
Court Reporting
U215 B-Central Services Building
Northern Alberta Institute
   of Technology
11762-106 Street
Edmonton, Alberta
T5G 2R1

Dear Ms. Bottas:

Thank you for the opportunity to read your dissertation proposal, "The Perceptions of Physically Disabled Adults Regarding High Technology Vocational Training".

The educational needs of all post-secondary students are of interest to the Department of Advanced Education. The needs of the specific students to be included in your survey are also of interest since the Department was kept informed of their involvement in the P.H.O.E.N.I.X. project by its operators and, more recently, by the Department of Manpower through its support to some of the people who were in training.

When your dissertation is completed, I would appreciate receiving information on your findings.

I expect that Canada Employment and Immigration, Alberta Social Services and Community Health, and Alberta Manpower, which provided funding for the P.H.O.E.N.I.X. project, will also be interested in your conclusions.

Thank you for bringing your dissertation proposal to my attention and for your interest in better understanding the needs of severely disabled persons seeking to live independently.

Yours truly,

Dick Johnston

Dick Johnston
Minister of Advanced
   Education

DJ/mjl